



COLONY AND PROTECTORATE OF KENYA

**MEDICAL DEPARTMENT
ANNUAL REPORT
1956**

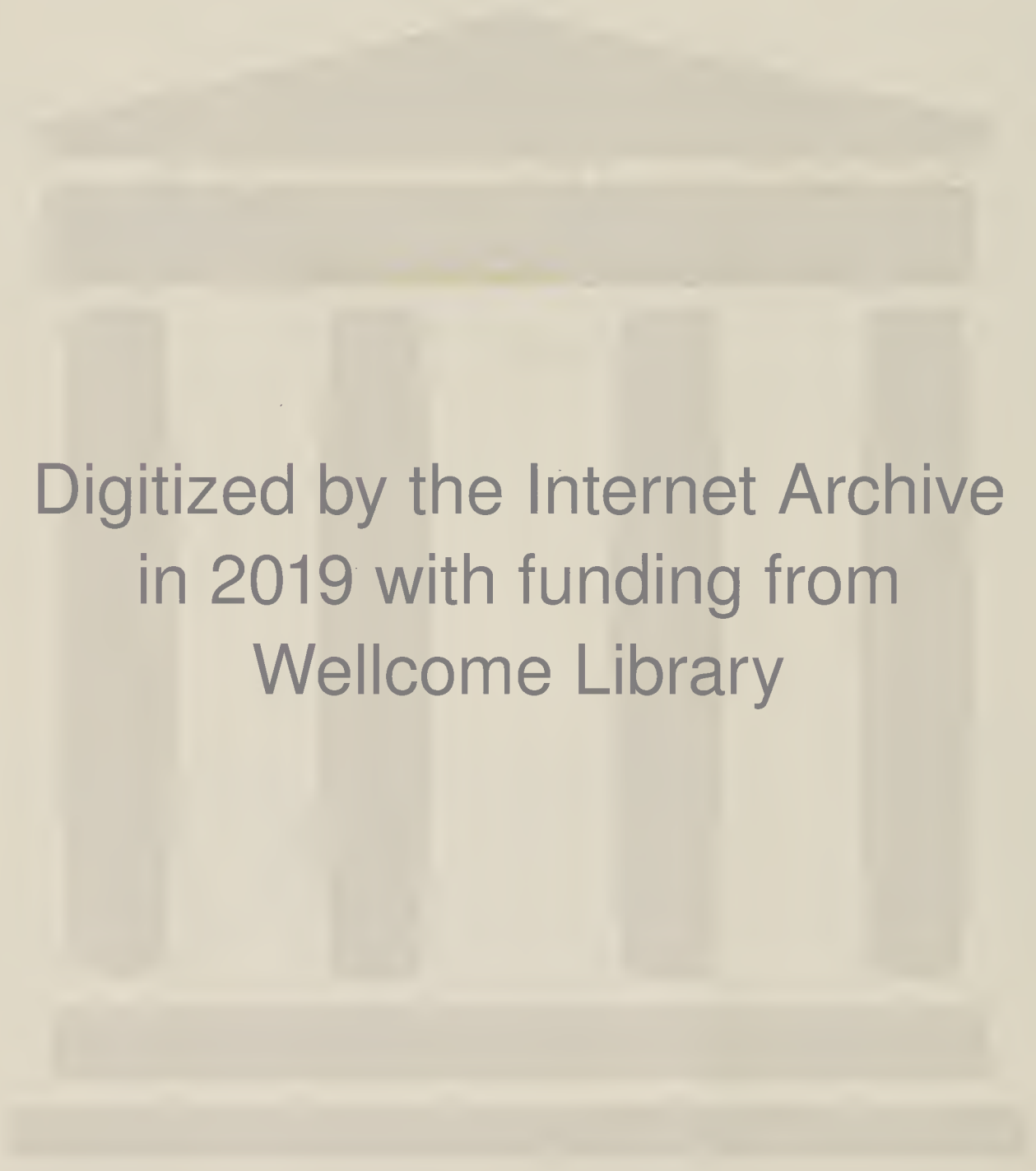


1957

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THE MINISTER FOR LOCAL GOVERNMENT,
HEALTH AND HOUSING, NAIROBI.

SIR,

I have the honour to submit for the information of His Excellency the Governor and for transmission to the Right Honourable the Secretary of State for the Colonies, the Medical Report on the Health and Sanitary Conditions of the Colony and Protectorate of Kenya for the year 1956, together with the Returns, etc., appended thereto.

I have the honour to be,

Sir,

Your obedient servant,

A. J. WALKER,

Acting Director of Medical Services/Secretary for Health.



MEDICAL DEPARTMENT ANNUAL REPORT, 1956

INTRODUCTION

The year 1956 was one for pause and reappraisal of our present work. As Emergency conditions passed, thought had to be given to meeting demands of a period of quickening agricultural and administrative development, especially in the African areas. Many resettlement plans were being discussed everywhere which involved the Medical Department in new responsibilities.

In 1955 the need to expand the establishment of medical and nursing staff to cover the present and imminent demands on the Department was recognized and this very necessary increase in our establishment was approved by the legislature in the Budget debates of 1956. At the same time more revenue to meet rising departmental expenses had to be sought and the Legislative Council accepted the principle that the Medical Department should charge some fees for the services they rendered to the individual. It was as if a corner had been turned and new vistas of medical responsibility became evident. We had to learn a new philosophy of service with the changing relationships between the Department and individual patients.

As extra staff and revenue were not expected before the year's end, time was thus given to measuring the problem and readjusting the machinery to meeting the new tasks. Another reason for necessitating a change in outlook was that the Director of Medical Services was appointed acting Secretary for Health and Welfare within the Ministry of Local Government, Health and Housing. This was in recognition that the promotion of health needed both physical and psychological understanding and that social wellbeing is a requisite for a state of sound mental health.

In this connexion, mention must be made of the extremely valuable welfare work performed by the Red Cross and St. John nurses and welfare workers in the Central Province and other areas. They worked in close conjunction with members of the Medical Department and Administration, achieving a high level of service to the people which has been greatly appreciated by all.

The existing hospital and other services have been maintained at a high standard, but the newer ventures such as the development policy for health centres and the establishment of a health education unit have been re-examined and reassessed. Later in this report, it is proposed to describe the development of these two services over the few preceding years and to measure the extent of their success as against the original concepts of the role they were to fulfil. Both these services have been successful and interest lies in the closeness in which their development has followed the original plan, but there are significant divergences which we have to recognize and to incorporate in our future policy.

No serious epidemics occurred in the year, though typhoid fever was still troublesome in certain areas. The extent and patchy distribution of this disease as we now experience it poses a challenging epidemiological problem which may be quite difficult to solve.

Variola minor was also widespread and, though it hardly merits being classed as smallpox, its prevalence has necessitated large-scale vaccination campaigns in order to ensure that the condition did not get out of control.

Tuberculosis remains the most important and difficult infectious disease with which we have to deal and demands much attention. A fully organized scheme of survey and treatment under domiciliary supervision was worked out during the year.

MEDICAL AND NURSING STAFF

The following staff changes took place during the year. One Assistant Director of Medical Services retired and the vacancy was filled by the promotion of a senior medical officer. One senior medical officer left on retirement and this vacancy was filled by the transfer on promotion of a medical officer from Zanzibar. The newly created appointment of Senior Medical Officer (Clinical) has been filled in an acting capacity by a medical officer of the existing establishment. The two vacancies for Senior Specialists were filled by the promotion of two of the departmental specialists. In July the establishment of medical officers was increased by 12, bringing the total number of medical officers employed up to 91.

Some medical officers are now being engaged locally on temporary contract terms, in the first instance. They are eligible to appear before a Colonial Office Extension Board. So far there has been one meeting of the Board when two candidates were accepted for full permanent appointment and two were deferred for further consideration by the next Board.

In the nursing service the recruitment position shows improvement on the previous year and vacancies are now fewer, notwithstanding a considerable increase in the sanctioned establishment during the year. The remedy to what had become a crippling situation that threatened to cause a breakdown in the nursing service was to offer short-term contract appointments to fully qualified nursing sisters recruited abroad. Many of the staff so engaged have now applied for permanent appointment on the normal terms, having come to Kenya and recognized the opportunities and professional satisfaction that work for the Department affords.

The position can be best shown in tabular form :—

I—ARRIVALS

(a) *Queen Elizabeth's Oversea Nursing Service :—*

First Appointment	..	..	7 Nursing Sisters
			2 Health Visitors
Reappointed	..	..	1 Nursing Sister
On transfer	4 Nursing Sisters
TOTAL	14		

(b) *Contract Service :—*

First Appointment	5 Nursing Sisters
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II—DEPARTURES

1 Matron Grade II	Retired
1 Sister Tutor	Resigned on marriage
2 Health Visitors	..	..	Resigned on marriage
8 Nursing Sisters	..	..	Resigned on marriage
1 Nursing Sister	..	..	Transferred to Somaliland
TOTAL	13		

III—APPOINTED BUT NOT YET ARRIVED

(a) *Queen Elizabeth's Oversea Nursing Service*:—

First Appointment	.. ..	2 Nursing Sisters
On transfer	.. ..	1 Nursing Sister

(b) *Contract Service*:—

6 Nursing Sisters

IV—EXISTING VACANCIES

Nursing Sisters	..	36
Sister Tutor	.. ..	1

TRAINING

General

The Medical Training Centre has continued at full pressure and a new category of trainee, the medical assistant, has been introduced. The medical assistant is being trained to a higher grade than the hospital assistant as the schools are now turning out their pupils with a higher standard of basic education. Medical assistants are trained in nursing procedures and have further instruction in simple and common medical care. The aim is to turn out a man who is capable, after a period of further experience, of taking charge of a rural health centre or a small subsidiary hospital. The medical assistant will be the bridge between the present demand and the future supply of doctors qualifying from the East African School of Medicine.

There are now more than 400 pupils at the Medical Training Centre undergoing courses of training as medical assistants, hospital assistants, laboratory assistants, dispensers, entomological assistants, radiographers, assistant nurses and Kenya registered nurses. The school buildings are quite inadequate for what is to all intents and purposes a large technical institute. Plans for rebuilding the school were completed during the year and, with the provision of special capital funds, work on rebuilding should commence in 1957.

The results of the school's work can best be illustrated by reporting shortly on the activities of the Nurses' and Midwives' Council of Kenya, which is the statutory body controlling the training and registration of nurses, assistant nurses and midwives in Kenya.

The training of assistant health visitors was continued at Kisumu and Embu. During the year three students entered for the Final Examination at Kisumu and ten students at Embu. All candidates passed and were subsequently employed by African district councils. 14 new students commenced training this year and for the first time it was found possible to accept only those who were already trained assistant nurses or trained assistant midwives.

This is an important step in the march of progress as these candidates, besides being more highly qualified, are also older and more mature, and are thus better able to carry out their duties on completion of their training. They are also able to cover the curriculum in one year instead of two, thereby enabling the number of students accepted for training to be doubled.

The Nurses' and Midwives' Council of Kenya

The work of the Council has continued to increase during the year, and it is now necessary to hold a full council meeting every month instead of quarterly. A considerable number of meetings of sub-committees have also been held. An election took place on 28th February, 1956. Four new members were elected to the Council and two were re-elected. The Minister of Health appointed one new member to the Council and reappointed five other members.

During the year the following categories were registered or enrolled by the Council:—

Registered Nurses	118
Registered Midwives	61
Registered Sick Children's Nurses	9
Enrolled Nurses	2
Enrolled Midwives	3
Enrolled Assistant Nurses	7
Enrolled Assistant Nurses Grade I	38
Enrolled Assistant Nurses Grade II	132
Enrolled Assistant Midwives	37

The following are the results of the examinations conducted by the Council:—

1956	GOVERNMENT TRAINING SCHOOLS			NON-GOVERNMENT TRAINING SCHOOLS			Grand Total
	Passed	Failed	Total	Passed	Failed	Total	
Kenya Registered Nurses Final Examination	2	—	2	—	—	—	2
Kenya Registered Nurses Preliminary Examination	5	—	5	—	—	—	5
Assistant Nurses Grade I Final Examination	29	4	33	6	—	6	39
Assistant Nurses Grade I Preliminary Examination	34	5	39	15	4	19	58
Assistant Nurses Grade II Final Examination	43	15	58	33	24	57	115
Assistant Midwives Final Examination	4	—	4	27	34	61	65

The following new training schools were approved by the Council:—

Nairobi European Hospital for Kenya Registered Nurses.

Kenya Tea Company's Hospital for Assistant Nurses Grade II.

Church of Scotland Mission Hospital, Chogoria, for Assistant Midwives

FINANCE

Expenditure

The total expenditure of the Medical Department (excluding capital Development Expenditure) for the period 1st July, 1955, to 30th June, 1956, amounted to £1,616,576 as compared with £1,524,250 for the period 1st July, 1954, to 30th June, 1955.

Some of this expenditure was offset by reimbursement amounting to £49,390 for medical services rendered to High Commission services and for salaries of departmental staff seconded to local authorities.

The following is a summary of expenditure under the main sub-heads during 1955/56:—

	<i>Year ending 30th June, 1956</i>
Personal Emoluments	931,216
Travelling and Transport	49,065
Medical and Surgical Stores and Equipment ..	306,783
Maintenance and Upkeep of Medical Establishments	140,319
Grants	35,150
Miscellaneous	113,184
Non-Recurrent	40,859
Total ..	<u>£1,616,576</u>

The increase in expenditure was due to rising costs and general development of medical services.

Revenue

Revenue collected during the year amounted to £126,167 and Arrears of Revenue at 30th June, 1955, amounted to £28,970 of which £17,064 related to Hospital Fees. Revenue abandoned during the year amounted to £4,832.

The following is a summary of revenue collected during 1955/56:— ,

	<i>£</i>
Hospital Fees	27,971
Miscellaneous Fees	2,216
Infectious Diseases Hospital Fees	7,427
Fees from Government Analyst	851
X-Ray Fees	4,782
Fees for Massage and Physiotherapy	351
Medical Fees—Workmen's Compensation	3,912
Medical Laboratory	10,588
Rations	386
Quinine and Mepacrine	213
Medical Stores and Equipment issued to African District Councils	35,343
Medical Stores for Mission Hospitals	7,209
Artificial Limbs	1,250
Railway Rebate	2,700
Recoveries from Medical Learners for Boarding Fees	10,274
Health Education Materials	800
Sundry	9,894
Total ..	<u>£126,167</u>

Development

Expenditure under the Development Plan amounted to £180,333 of which £172,532 was spent on capital projects. Further details of this expenditure are given in the paragraph below.

BUILDINGS

The money for new building development has been allocated to the Department under the Development Plan extending from January, 1954 to June, 1957. As heavy a programme as technical resources would allow was projected. Progress achieved can be reported in two categories.

1—Works Started in 1955 and Completed in 1956

NAIROBI: NEW INFECTIOUS DISEASES HOSPITAL

This hospital, now named the South Hill Hospital, forms part of the King George VI group of hospitals and was opened in April. The final cost was less than the estimated cost and the savings were reallocated by the Secretary of State to other important items required in connexion with the hospital, notably an extension in staff housing.

MOMBASA: PROVINCIAL GENERAL HOSPITAL

Phase I.—This phase was sufficiently complete for the administration and out-patient block to be opened in April. Work has continued since then; the only outstanding item at the end of the year being the completion of the air-conditioning plant in the theatres and the X-ray department.

Phase II.—This phase, consisting of the main ward block and kitchen, was started in 1955 and was nearing completion at the end of 1956.

NAIVASHA HOSPITAL

The rebuilding of most of this small but important hospital in the Rift Valley Province was completed early this year.

NAKURU HOSPITAL

Water-borne sanitation was at last installed on completion of the public sewer to the hospital and with the assurance of an improved water supply from new mains.

HOUSING

Housing to the value of approximately £10,000 was built at Mathari Mental Hospital, Port Reitz Hospital and Machakos Hospital.

CHIEF HEALTH CENTRES

These were opened as an extension to the existing out-patient departments at Kilifi and Wesu hospitals. Many of the main district hospitals have now been served in this manner resulting in a great improvement in the out-patient and clinic facilities at these centres.

2—Works Started in 1956, But Not Yet Complete

NAIROBI: CONSULTATIVE CLINIC AND X-RAY EXTENSIONS

This important development started early in the year, and was three-quarters finished by the end. It will supply treatment and consulting-room accommodation for all the Government specialists who at present are compelled to see their patients in four or five different centres. Its siting, immediately adjacent to the pharmacy at King George VI Hospital and to the X-ray department will make for the convenience of both consultant and patient.

AFRICAN STAFF HOUSING—KING GEORGE VI HOSPITAL

This project, made necessary by the increasing concentration of departmental staff, was nearing completion by the end of the year, all that then remained to be done was the installation of electricity and the completion of the plumbing. The houses are being built with pumice blocks and are a pilot project involving a new type of building construction. They are being built to an improved standard with electric light, individual water-closets and bathrooms, and with well-fitted kitchens. It is anticipated that they will be much in demand by senior members of the Department's staff.

SOCIAL HALL AND CANTEEN—KING GEORGE VI HOSPITAL

Such a meeting-place has long been needed. Apart from day-to-day usage it will be available for theatrical, social and sporting occasions.

EMBU HOSPITAL

Very necessary ward extensions were built here to cater for the medical needs of an increasing population on the resettlement schemes in the district. Water-borne sanitation was also installed serving the whole hospital.

KAKAMEGA HOSPITAL

A kitchen and laundry unit to a new design was built here.

LODWAR HOSPITAL

Work on the rebuilding of this isolated hospital in Turkana has been made possible by a substantial grant from the African Trust Fund.

Further work as specified was put in hand at Machakos, kitchen and laundry; Port Reitz Hospital, medical officer's house; Nyeri, 44-bed tuberculosis ward; Itesio Leprosarium, further patients' housing, dormitory accommodation for young patients and staff housing. At Narok, extensions to the out-patients' departments were started. Finally, the Department made grants totalling £10,000 to African district councils towards the cost of building 13 locational health centres.

HOSPITALS

General

There has been a rise of over 20,000 in-patients treated in Departmental hospitals in 1956 as compared with the previous year. This represents an 11 per cent increase in the amount of work done by the hospitals and does not reflect the establishment of many extra beds. There were only a few new beds opened during the year, 44 at Nyeri, 40 at Kisumu and 24 at Embu. Every medical officer in charge of a hospital has reported his preoccupation with the overcrowding problem and the two hospitals worst affected this year were Thika and Kapsabet. Special reasons existed at these two places, for the development at Thika has proceeded apace and the hospital is now too small for the population it serves, whilst there was a prolonged outbreak of typhoid in the Nandi District, resulting in a large flow of patients to the hospital.

There were 7,120 deaths amongst African patients out of 170,401 admissions, which is the total for all the hospitals. This represents a death rate of 4.1 per cent of the admissions and the figure compares not unfavourably with the experience of certain general hospitals in the west of England, which can be taken as an average sample of the hospitals in the United Kingdom. The death rate there

is in the region of 6 to 7 per cent and the favourable comparison of experience in Kenya with that in England reflects the very satisfactory standard of medical care that exists in the Kenya hospitals. All credit, however, for the low death rate cannot entirely be assigned to this account as some hospitals in the more remote districts of the country have to admit patients, not so much on account of the severity of their illness, but as for difficulties of transportation. The occasion often arises when cases with simple wounds have to be admitted, since it is impossible to request the patient to attend for daily treatment if he has a journey of 30 miles or more from his home to the nearest medical centre. Notwithstanding this, and in view of the large amount of work done during the year at such a satisfactory standard, great credit must be given to the hospital nursing staff and doctors for their assiduous work, especially when it is remembered that they have other duties to perform with regard to training, the maintenance of public health, administration and calls for medico-legal advice.

Infectious Diseases Hospitals

Infectious diseases hospitals and isolation wards attached to district hospitals are turning more and more into special units devoted to the treatment of tuberculosis. In Mombasa and Nairobi, the Port Reitz Hospital and the South Hill Hospital have set aside the major part of their accommodation for the treatment of this disease, though some general beds must necessarily be kept for the usual infectious diseases which, however, are admitted in small numbers as compared with tuberculosis.

The old Infectious Diseases Hospital at Mombasa has now finally been transferred and incorporated with the Port Reitz Hospital. Many beds there were set aside during the year for Medical Research Council trials on drugs known to be effective in the treatment of tuberculosis. The object of these trials was to determine the cheapest and most effective treatment which can be adopted for use in the domiciliary care of the tuberculosis patient. A promising combination of drugs was regrettably found to offer no advantage over the present substances now in use but which are still rather expensive when prescribed for use by a large number of patients on a large scale.

When the South Hill Hospital at Nairobi was being designed, it was thought necessary to arrange for special accommodation to be built for the treatment of the more severe cases of poliomyelitis. A complete block now exists which has specially large rooms and is next to the X-ray suite. It is now equipped reasonably fully with the latest and best apparatus for the management of paralytic poliomyelitis affecting the respiratory system. This development was warranted by our experiences in 1954 when seriously ill cases had to be treated in extemporized conditions at the old Infectious Diseases Hospital. At that time a nucleus of skilled and enthusiastic workers was created as a poliomyelitis unit so that they would be able to conduct the intricate and expert treatment that these very difficult cases demand. Patients can now be flown in the air ambulance from any part of Kenya, or indeed East Africa, to the Unit in Nairobi. When the occasion demands, members of the poliomyelitis team have flown to the provinces in order to attend the patient during his air journey to Nairobi.

Many beds in the South Hill Hospital have also been used for tuberculosis therapy trials, but the opening of new beds in Nyeri and Kisumu has allowed our transferring these trials to those places. This is of great advantage to the patients, as they can be treated and observed in a hospital nearer to their homes and where they are necessarily happier during their long and often uneventful stay in hospital, while they remain under careful clinical observation.

Itesio Leprosarium

Itesio Leprosarium is now fully established and has accommodation for 300 patients with potential space for many more if the need arises. The present accommodation consists of a small hospital of 30 beds, general patients' housing, bachelor-type housing and a boarding-school for accommodating young patients suffering from leprosy, and an apprentices' courtyard. Two churches have also been built, respectively by the Roman Catholic and Protestant communities, at their own expense and from money collected by public appeal. It is necessary to establish a complete social structure at an institution like this in addition to providing medical services, when it is considered that some of the patients suffering from leprosy may remain under treatment for a period of one to three years. The school provides the usual facilities for primary education, but it has not been possible to find a teacher who is himself a patient, capable of conducting classes at a secondary school standard. The apprentices' school has been established and the results are most interesting. The school is under the general charge of the hospital superintendent who is teaching his pupils the arts of masonry, woodwork, metalwork and engine repair. It has only been through the efforts of the hospital superintendent and his pupils that the final spurt in the building of the leprosarium proceeded so smoothly. In many respects more work in the development of the buildings has been done in 1956 than in any previous year. Not only has the quantity of work been satisfactory, but visitors can testify to the very high standard of craftsmanship that the apprentices' school has achieved.

The story with regard to the development of the farm at Itesio is not so happy. Only a small proportion of land has been put under cultivation, and it became quite clear that if attempts were made to develop more land, the building of the leprosarium would suffer. Instructions were, therefore, given that the farm development should remain at a standstill, whilst all efforts were concentrated on the erection of buildings and workshops. It is clear that full utilization of the agricultural possibilities at Itesio will be a major administrative and technical undertaking which may be beyond the capacity of the Medical Department officers to tackle by themselves. It would not be disadvantageous from many points of view to arrange that the Itesio farm should be run as a partnership between the agricultural and medical departments.

Mathari Mental Hospital

The hospital for the treatment of mental illness at Mathari has been overcrowded during the year and much credit is due to the Specialist Psychiatrist and his staff in his being able to record a successful year, both with regard to treatment and progress. At times there were 700 patients in the hospital, of whom 85 were detained there for criminal offences in addition to their suffering from mental disease. The staff also had to treat much physical disease, the most prevalent being tuberculosis. That the situation has been met is reflected by the fact that the death rate in 1956 was 3.8 per cent of the total admissions which is the lowest on record.

Many more admissions were recorded during the year, but the numbers were kept down to what may be termed barely manageable proportions by the quick discharge of patients from the hospital. In order to achieve a larger turnover, more active forms of treatment were developed, amongst which electro-convulsive therapy is the most useful. Sedation, especially with insulin, is seldom practised as the results from electric treatment have been remarkably successful in the management of mental illness prevalent among the patients.

The hospital is now dealing with as much work as it possibly can and it is clear that more accommodation will soon be needed, especially for the isolation of cases suffering from physical in addition to their mental illness. The attempts to reduce numbers of admissions to the hospital in Nairobi, as discussed in last year's report, whereby doctors in charge of district hospitals were encouraged to treat patients with sedation have continued with limited success. Some medical officers reported difficulties in achieving full sedation, but this technique may be more rewarding in the future, as experience and confidence is gained. An electro-convulsive therapy machine has been sent to Mombasa and selected medical officers have spent a short time at the Mathari Mental Hospital learning the technique of administration, but it is as yet too early to judge whether full-scale treatment with this form of therapy can be usefully adopted in the provinces.

The occupational therapy facilities at Mathari Mental Hospital now include a small farm and workshops in which many articles of commercial value are produced and find a ready sale. Arrangements for sports have also been improved and the football team turned out by the hospital patients is a force to be reckoned with.

MEDICAL STORES—STERILE PREPARATION UNIT

Despite the upsets in shipping during the latter half of the year supplies from overseas still came in steadily and the stocks at the central store were maintained at a satisfactory level. The through-put at the stores attained large proportions even though supplies to emergency institutions were not required in such quantities. Supplies to local health authorities obtained from the Medical Stores increased considerably and a large flow of material assigned to the Department from U.N.I.C.E.F. had to be received by the central stores and distributed to the units in the field.

Production in the Sterile Preparation Unit continues to increase. Some 70,000 bottles of various perfusion fluids and solutions for injection were manufactured during the year. Material is produced at a most economic price and there is no doubt that a considerable sum of money is saved through the activities of this unit. The purchase of sterile fluids from commercial sources would undoubtedly result in a heavy expenditure by this Department. The time is now fast approaching when accommodation in the Sterile Preparation Unit is becoming inadequate and some new equipment will have to be bought. Plans for reorganizing the unit are under consideration.

Blood Transfusion

More and more blood is required at all hospitals, especially at Mombasa and the King George VI Hospital, Nairobi, for the intricate and extensive operations, often devised by the chest surgery unit in order that a radical and quick cure of certain types of tuberculosis can be offered to patients.

The British Red Cross Society has helped nobly in obtaining supplies of blood, though they have not been able to meet the demand for all the hospital needs. King George VI Hospital and provincial hospitals have established panels of voluntary donors and have developed the technique of persuading relatives to give blood. There will never be too much blood, but as understanding grows amongst patients' friends of their duties to them, it is expected that offers of blood will continue to increase.

LABORATORY SERVICES

Staff

One pathologist was in England on a post-graduate study course for the whole year and the bacteriologist was on vacation leave for five months during the summer. That work at the Medical Research Laboratory could continue in such circumstances was only because of the steadily rising standard of work by the African laboratory assistants who take on more and more responsibility every year. In bacteriology especially, they now carry out, under direction, rather than supervision techniques of a complexity which would have been unthinkable ten years ago. Much of the credit for this must go to the officer responsible for their training.

A senior officer of the Laboratory Division attended the World Health Organization seminar in virus diseases in Madrid in April, but little opportunity has yet presented to profit from the experience so gained. Were accommodation and staff available, it would be possible to establish a small virological unit in Nairobi, but for the present it is better that specimens should be sent away for examination by acknowledged experts in this particular field.

Research

Agglutination tests were carried out for the Division of Insect-borne Diseases in connexion with their new work on typhus and many bacteriological investigations were performed for the Medical Research Council during their recent drug trials against tuberculosis.

Biochemical examinations continued to show an increase, stemming from the activities of the Poliomyelitis and Respiratory Unit who were doing much research on blood biochemistry necessitated by the difficult cases with which they had to deal.

The two research workers from the Wellcome Trust returned to the Medical Research Laboratory in January from an investigation of anaemias in India and began work on iron losses and iron deficient anaemias which has provided results of the greatest interest on which reports will be published in 1957. They continued to be of great value to the Department as consultants in haematological cases.

General

About 72,000 routine specimens were dealt with in the various sections of the laboratory; they included 2,375 specimens for histological examination. After discovery in Kenya, two new *Salmonellae* were sent to England for final identification and were named *S. aqua* and *S. souza*. As a result of visits made to institutions reporting outbreaks of food poisoning, one carrier of *Sh. flexner* was found and carriers of organisms of the Providence group were identified in two others.

Out of Nairobi, the provincial laboratory in Mombasa still remained in its cramped quarters in the old hospital, but it is to move to the new one early in 1957. The technologist in charge of the provincial laboratory at Kisumu was on vacation leave followed by sick leave for much of the year and for some months no relief could be sent there. Again, certain staffing difficulties arose at Nakuru, but these can be resolved early in 1957.

Finally in district hospitals, laboratory assistants continued to give their generally excellent, if limited, service and undoubtedly merit more notice and praise than they are apt to receive.

Vaccines

Vaccine production continued (*see table*). It may be noted in passing that the 8,000,000 doses of smallpox vaccine issued would, if purchased from abroad at the lowest obtainable rate, have cost £100,000. It should be added also that a "dose" of vaccine as issued will suffice for at least two people. The Kenya medical profession as a whole ordered and received enough during the year to vaccinate the whole population twice over. It is hoped, therefore, that demands may fall off in 1957 so that reserves can be increased.

Typhoid vaccine, as prepared, was exclusively of the Felix alcoholized type.

Semple type rabies vaccine was still prepared from rabbit brain. Attempts were made to use sheep in accordance with the World Health Organization's recommendations but for various technical reasons were unsuccessful.

VACCINE PRODUCTION—1956

	Prepared	Issued to Kenya	Issued to Other Territories	Total Issues
Vaccine Lymph (doses)	6,800,000	5,052,427	3,364,052	8,416,479
Typhoid Vaccine (mls.)	439,000	377,555	38,455	416,010
Anti-Rabies Vaccine (mls.)	50,160	36,980	14,880	51,860
Plague Vaccine (mls.)	61,200	37,800	5,825	43,625
Standard Agglutinable Diagnostic Suspensions (mls.)	63,240	63,240	Nil	63,240

REVENUE EARNED BY THE SALE OF VACCINES TO OTHER GOVERNMENTS

	Vaccine Lymph	Typhoid Vaccine	Anti-Rabies Vaccine	Plague Vaccine	Total
	£	£	£	£	£
Tanganyika Territory	1,803	633	65	116	2,617
Uganda	3,000	449	160	—	3,609
Zanzibar	210	13	—	—	223
British Somaliland	10	—	22	—	32
E.A. Command and R.A.F.	23	—	—	—	23
Nyasaland	—	56	—	—	56
TOTALS	5,046	1,151	247	116	6,560

HEALTH CENTRES

Since the building of the first health centre in 1951 at Githungiri in the Kiambu District 33 locational health centres have been completed. These are at:—

Coast Province.—Kilifi District at Jibana, Kwale District at Kwale, Wesu District at Mpizini, Mombasa District at Kwa Jomvu, Kipini District at Hola.

Central Province.—Kiambu District at Githungiri and Gatundu, Fort Hall District at Kangema, Embu District at Kiamatugu, Meru District at Githongo, Nairobi County at Ruiru and Karen.

Southern Province.—Machakos District at Masii.

Rift Valley Province.—Nandi District at Kapiyet and Kilibwoni, Baringo District at Perkerra, Naivasha County at Gilgil.

Nyanza Province.—Elgon Nyanza District at Kimilili, Sirisia, and Nambare, North Nyanza District at Butere, Vihiga, Hamisi, Iguhu, Nabakholo and Namalungu, Central Nyanza District at Ahero, Bondo, Siya and Nyahera, South Nyanza District at Migori, Oyugis, Kericho District at Sossiot.

At the end of 1956 a further 25 or more rural health centres were projected or were in building. This is remarkable progress in five years and is a reflection of the eagerness with which the community has welcomed and accepted the health centre concept.

The average cost of building a rural health centre together with the necessary housing amounts to about £3,500. In the first instance each district was helped by a grant of £1,000 from the Central Government, a 50 per cent proportion of this represented assistance from H.M. Government under the Colonial Development and Welfare Act. Some few health centres have been built entirely from Government funds which have been provided in certain areas in the nature of a special award in recognition of some good service rendered by the local population. That special award money has been devoted to the building of health centres again stresses the popularity of these projects as it is a matter of local choice to decide to which object the money representing the special award should be devoted. The building of a locational health centre is invariably the local desire.

The eventual aim is to have a locational health centre not more than ten miles apart from another and to serve a population of about 10,000. This is the plan in the more densely settled areas and will involve building at least 150 of them. Development is as fast as it can be at the moment, having consideration for limitations and shortages of trained staff.

The original object of the scheme was that a medical assistant, together with a health assistant, midwife or health visitor, would be available to give a high degree of personal attention to the community and undertake domiciliary visits. Illness was to be prevented through the improvement of environmental conditions, education in hygiene and the early treatment of disease and the pressure on hospital beds reduced. This intention has not yet been realized; pressure of clinical work has made it necessary for patients, coming from more remote areas to be sent to hospital when, if time and distance allowed it, they could well have been treated in the home.

This failure of one of the primary intentions has resulted in a call for some beds at many of the bigger centres. Not more than six to eight are required in order that urgent and straightforward midwifery can be performed, more simple bed treatment can be given and more serious cases held for a matter of hours only until it is possible to send them to hospital. It may not be possible to do away with these beds until there are very many more centres and living conditions generally become very much better to allow treatment to be conducted within the family homestead.

There is a strong tendency for more and more beds to be added so as to hold patients near at hand when regular clinics for special purposes are to be held at the health centres; when what is needed is hostel accommodation. A hostel of this type has been built near Embu and is being managed by the African District Council, the only responsibility accepted by the Medical Department being supervision of the hygiene and sanitation.

In some areas, notably Nyanza Province, the benefit of the health centre services are being taken farther afield through the medium of regular visits by their staffs to satellite dispensaries. This is a useful stopgap until more staff and money is available to build full-scale institutions in all places that require them. This idea of partial mobility of health centre staff has now been adapted in certain areas into making the staff completely mobile.

A new project for mobile health units has been worked out in conjunction with advisers from World Health Organization and with the promise of help from United Nations Children's Fund. Mobile health units should have an important role in the Northern Province and parts of the Masai districts where the population is mostly nomadic. Everything is carried on the vehicles, including equipment, drugs and the personal necessities of the staff attached to the unit. The vehicles travel together on a regular round of the centres of nomadic life, such as watering places, stock markets, and seasonal grazing grounds. It is quite clear that a full-scale midwifery service cannot be instituted in these circumstances, but education on the prevention of disease, on personal hygiene and on the care of children can quite conveniently be given, whilst the other side of the unit is attending to the sick. The mobile teams usually travel with a specific object in view, such as the alleviation of trachoma, the treatment of yaws and venereal diseases or the assessment and supervision of cases under treatment, outside the hospital, for tuberculosis. Quite clearly, the task is difficult. Results at the moment are inconclusive, but there is no doubt about the popularity of the mobile units with the people themselves.

As the tribes settle down to well defined areas, as is becoming apparent in Masai, the tours of the mobile health units will become more localized and regular and will take on more of the character of the localized circuits now the practice in the Nyanza districts. At the moment the mobile units are providing an essential service in health education which will help the tribes to meet the greater health hazards of permanent settlement so that these hazards may not counterbalance the economic benefits.

RESETTLEMENT AND WELFARE

Irrigation Schemes

There are now four irrigation schemes in the country which will eventually support new settlers, chiefly from the Kikuyu areas. These are at Mwea Tebere and Yatta in the Central Province, Perkerra in the Rift Valley Province and Hola in the Coast Province. Such schemes naturally create problems associated with the spread of malaria and bilharzia. The most developed scheme, though still in its early stages, is at Mwea Tebere and 300 families have already been settled there. Malaria control by means of hut spraying with insecticide has been effective in this dangerous area. As the main canal has not yet been opened there is at yet no serious danger from bilharzia. At Perkerra, however, the presence of immigrants from the west living near a neighbouring lake create a particular hazard, as they have been shown to be infected with bilharzia and may quite easily spread this disease throughout the new irrigation areas.

A canal of 30 miles in length is being dug to carry water from the Thika River on to the Yatta Plateau, where the intention is to open up irrigation schemes and to settle neighbouring tribesmen on this hitherto scantily populated land. The Hola scheme depends upon irrigation water being pumped from the Tana River. Both places are at a rather lower altitude and warmer, hence the dangers of malaria and bilharzia are greater.

In their early stages, these resettlement and irrigation schemes presented a problem in the protection of public health, whose solution had to be worked out on the spot by the district medical officer of health and the Division of Insect-borne Diseases.

Staff was posted to the area by the Medical Department to supervise the field protective works and later establish the usual medical treatment centres, such as dispensaries, health centres and small hospitals. The full responsibility

for initiating schemes of medical protection and care falls upon the Medical Department and remains there until such time that a local authority can be incorporated and can accept the duty for maintaining the new dispensaries or health centres.

Some administrative difficulties have been experienced during the year in ensuring that medical development should keep pace with agrarian development, but an understanding has now been reached which allows for proper provision to be made for medical coverage right from the start. The principle that has been agreed is that the capital charges of any resettlement scheme should include some element for the building of staff housing for Medical Department personnel and the erection of health centres, or dispensaries.

Villages

The year under review has seen an immense improvement in the general hygiene and sanitation of villages. The new villages constructed show a great advance in design, with improved housing and pleasant layouts. The larger Emergency villages have been broken down into smaller villages built with forethought and with the benefits of previous two years' experience as a guide to all concerned. It has been possible to plan these villages and lay them out adequately without regard to the overriding dictates of security.

A census completed in the middle of the year shows that the villages are scattered through the various districts in the following manner:—

Kiambu	..	..	..	..	..	272
Fort Hall	..	..	..	..	..	235
Nyeri	..	..	..	..	..	169
Embu	..	..	..	..	..	128
Meru	..	..	..	..	..	80

Construction continues except in Meru where the existing villages are shrinking as the landowners return to their holdings once more.

The introduction of piped water supplies to serve some of these concentrated communities, especially in the Fort Hall District, was a revolutionary advance. Their installation was an immediate success, as the woman was straightaway relieved of hours of drudgery spent in carrying water from the valley bottom to her house perched upon the hillside. The consequent cleanliness and happiness in the home concerned was remarkable.

Towards the end of the year £50,000 was made available by the Government as special financial assistance to improve the health of the villages in the Emergency areas. This sum was divided as follows:—

£22,000 for water supplies to the settlement villages of the Mwea Tebere area.

£23,000 for water supplies to the villages of the five districts of the Central Province.

£5,000 to be spent on the construction of crèches and playgrounds.

A condition was that the African district councils concerned should also include a £ for £ expenditure in their estimates for water supplies and playgrounds. This special financial aid came at a most appropriate time and at the end of the year the installation of water supplies was going ahead with the utmost speed, each village competing with the next as to who should have their water supply working first.

None of the proposed permanent villages on the consolidated lands in the Central Province has been built, but it has been possible to give the problem much thought. The Town Planning Adviser and the Housing Board have produced type plans for village layouts and improved African housing which will be followed. As land consolidation is progressing rapidly, it is possible that building will start soon on the first of these permanent villages at Mbariani, Kiambu.

Welfare

Red Cross and St. John officers were posted to Kiambu, Fort Hall, Nyeri, Embu, Meru, Machakos and Nandi districts, but were withdrawn from the two latter places following resignations upon marriage. The Department has a staff of health visitors, posted mostly to districts outside the Central Province. In addition to this, the Community Development Department has posted many officers to all districts. All these field officers are engaged on the promotion of health, welfare and training in hygiene. The need has been most urgent in the Central Province and a close co-operation has existed between all.

The welfare of women and children has received the greatest attention, being the most susceptible group. The year was not one of plenty and signs of protein deficiency among children became evident. The Teita District and the more populous areas of the Central Province were worse affected and the health visitors' and welfare workers' assistance in picking out the needy children was invaluable.

Supplies of dried skim milk were on hand and were distributed as part of a joint scheme between the Government and U.N.I.C.E.F. for the improvement of maternity and child welfare services. It was found that the usual grades of protein deficiency could be rectified by a regular distribution of reconstituted milk amounting to about half-a-pint per day for a child over the space of a fortnight.

If the general supplies of food became more scarce, the numbers of children exhibiting a protein deficiency rose and in this way the Department, through its welfare workers could keep the administration informed on the general food supply situation in the district.

There is no doubt whatsoever that these workers have achieved results of permanent value. They have the confidence of all and their word and example is closely followed. Many homes are now healthier, happier and brighter and many children better cared for. On the strictly medical side, much good work has been done in the alleviation of distress in tuberculosis, malnutrition and such simple and common, but crippling conditions as chronic running ears, conjunctivitis and jiggers.

HEALTH EDUCATION UNIT

The notion of Health Education is not new to Kenya, for as early as 1936, chiefly due to the enterprise of Dr. A. R. Paterson, the then Director of Medical Services, the Medical Department published many books and pamphlets under the now suspect title of *Medical Propaganda*. Then came the 1939-45 war and other and more pressing calls upon everyone's time soon put a stop to the furtherance of *Medical Propaganda*. After the war Dr. Paterson retired and his ideals were almost forgotten.

Post-war recruitment and the development of the new health centre service revived the need for educational material. Experience showed that this could best be supplied through the medium of a special unit created for the production of material adequate both in quality and quantity and which would not be entirely dependent on the personal drive of one man.

In 1952 a Graphic Museum was built near the Medical Training Centre in Nairobi. The object in building this museum was to emulate the very well-equipped and remarkable institute attached to the medical training school in Khartoum. The limited object was to provide graphic teaching material for the students at the Nairobi school and to be a permanent demonstration on hygiene matters for students from other schools and the general public in Nairobi. The workshops developed in association with the Graphic Museum became the source of the material so much in need for district use. Artisans were engaged and soon posters, pamphlets, models and lectures were being turned out in sufficient quantity to satisfy the immediate demand.

Colour printing was started, trick models with mirrors and flashing lights were made. Some models were there chiefly for light relief and gave electric shocks when touched, but the peak of novelty may have been reached when window curtains were printed by the silk screen process, with health slogans and designs. The silk screen printing process was adopted since novelty and multiple designs are of more value than thousands of repetitions of one single theme. The printed poster can only be produced economically in terms of thousands, but what is needed is variety.

Came the stage when other media, such as the local broadcasting service and the Press, had to be brought in to help. A great amount of co-ordination became necessary and policy required to be kept fluid and not dependent on one single man's ideas. A Health Education Committee was formed to represent the various interests, producer, distributor, etc. The committee stated its current policy and reviewed offers of help, chiefly in the preparation of scripts for talks, articles, booklets and films. The work was then divided out and the result had been the production of special films to illustrate tuberculosis, blood transfusion, building a house and the like. Series of talks by doctors, health inspectors and nurses have been given on the radio and many articles have appeared in the local vernacular press, having been contributed, as often as not, by a district medical officer. The help given by these voluntary contributors, the African Information Services and the East African Literature Bureau has been invaluable. Books and booklets published and distributed by the East African Literature Bureau enjoy a profitable sale which, in the last resort, is no barren criterion of the worth of the publication.

Advances in the technology of presentation of subject matter continue and here a debt is owed to U.N.I.C.E.F. Much equipment has been provided by them, especially in the way of film projectors, film strip projectors and tape recorders. A photostat machine and duplicator have also been installed. A considerable part of the Health Education Unit's work is directed to mounting exhibitions at agricultural shows up and down the country, from the very local district gathering to the large affairs staged by the Royal Agricultural Society of Kenya. The exhibit has to be good, and, being static, one can afford to put on a more complicated and sophisticated display. The U.N.I.C.E.F. equipment is invaluable in these circumstances and full use is made of the appeal of the film, especially cartoon films.

A very considerable degree of progress and growth has been attained since 1953 and which has been dependent on the foundation of a sound but flexible system of finance. The unit being an offshoot of the Medical Department, staff salaries and maintenance costs are chargeable against the departmental exchequer, and subject to the normal annual estimates. Any large unexpected demand for material might, under these conditions, go unfulfilled if some other arrangement were not adopted. It was decided that the unit must charge consignees for the supplies they receive, in order to earn revenue which can be equated against

production expenses and the purchase of unfabricated stock. The unit has "customers", usually local authorities who are notoriously difficult to satisfy. This is just as well for two objects are achieved by their having to pay. In the first place, the unit is able to command the respect, in part at least, of a revenue-earning concern and it also has a guide with which to judge the worth and popularity of any particular product. It would be admittedly dangerous to allow commercial considerations to take full charge, but there is no doubt that the earned revenue has allowed the organization to expand at a greater rate than if it had been completely dependent on a stringent allocation. The unit is now looking to the future and in certain ways the trend is evident. Mass appeal has its limitations and its impact is difficult to gauge. The solution appears to be to make a more personal approach to the individual and this means making fuller use of the interview or consultation. Everyone now has to be instructed in health education, more especially the African medical auxiliary, for he is the person who has the mastery of his own language, and the necessary insight to understand his pupil's mental processes, his beliefs, his fears and his aspirations. It was providential that the Health Education Unit was housed, right from the beginning, at the Medical Training Centre. It is now part of the school and inspiration and advice can be had for the asking from the more senior pupils or from the tutors. This is more than ever important when a topic of very local and special interest has to be discussed in terms of health education.

PUBLIC HEALTH GENERAL

Staff

Five new health inspectors were recruited bringing the total number employed to 25, but there were still three unfilled vacancies at the end of the year. Senior health inspectors were appointed in each province to co-ordinate and guide the work of the field officers in the districts, an arrangement which has proved most effective. Three new postings that have long been impossible through shortage of staff were introduced at Nakuru for the Elgeyo-Marakwet and Baringo districts, at Kisumu for the Central Nyanza districts and at Kwale for the Digo District. Arrangements have been made to post a health inspector to Kitui as soon as housing is available.

Conditions for employment for assistant health inspectors were improved by the establishment of more Grade 1 and senior grade posts. Local Government Health Authorities are employing assistant health inspectors to an increasing extent, giving them the responsibility for the supervision of services in well-defined areas within their boundaries. African district councils usually post an assistant health inspector to a division where he can control his health assistants who work in the locations. 14 candidates in training for the post of assistant health inspectors sat for the examination of the Royal Society for the Promotion of Health (E.A.) Joint Examination Board and ten passed.

Field Work

The Sanitation Division was much concerned in the development of various resettlement schemes, the establishment of permanent villages and the building of homesteads on consolidated holdings, to ensure that no unhealthy conditions should be created. The tidy clean state of villages in the Central Province is a monument to their work. Many of the permanent villages in the Central Province have piped water supplies which were put in by the villages themselves, helped and persuaded by the field staff of the Medical Department.

For the second year in succession, all the houses in the Nandi and Turbo-Kipkarren areas of the Rift Valley Province were sprayed with residual insecticide to achieve a highly effective, albeit expensive, control of epidemic malaria which regularly ravaged these districts.

The direct control of epidemic disease has always been very much the concern of the Sanitation Division. All members of the staff report their preoccupation in combating the many sporadic outbreaks of variola minor and the less frequent, but more serious, outbreaks of enteric disease that has been our experience this year. The numbers of vaccinations performed by the health staff exceed 1,000,000. This is a fine achievement and can be compared with the anti-malarial work done in the Rift Valley Province which stands out as a highlight against a bright background of sustained and successful endeavour throughout the year.

A notable individual contribution to the work of the Department must be recorded. The Instructor of Hygiene wrote a book entitled *The Home Builder's Guide*. Full practical advice and working plans of a very suitable design of house for the self-builder are incorporated in the book which is published by the East African Literature Bureau and enjoys a brisk sale. A prototype house has been built at the King George VI Hospital at a cost of £245, as a piece of practical class work by the students of the Hygiene School. During construction a detailed film was made by the African Information Services and added to their *How To Do* series. This work, together with much research on other building and design problems, has been done in an attempt to overcome the difficulties in providing suitable permanent and healthy housing for the African, both in town and in the countryside.

Local Government and Authorities

Nairobi City, Mombasa and Nakuru Municipalities and the Nakuru and Naivasha County Councils are fully responsible for their own public health services with independent staff. Nairobi County Council were able to engage a full-time Medical Officer of Health of their own, who was formerly a medical officer in this Department. Kitale, Eldoret and Kisumu Municipalities retained the part-time services of departmental medical officers as Medical Officers of Health, whilst employing their own health inspectors and subordinate staff. The Aberdare and Nyanza County Councils are still considering the financial implications of becoming public health authorities and all help in the way of advice and information is being given by the departmental staff. The Trans Nzoia District Council is considering a scheme to become a county council jointly with the Kitale Municipality.

Local Government Health Authorities are not immune to financial stringencies, but they continue to develop their services. The main sewerage scheme for Nakuru Municipality was completed during the year at a total cost of £328,000.

Dispensaries and health centres are being built by the Nakuru and Naivasha County Councils and the Nairobi City Council will soon accept the responsibility for dispensary services in Nairobi. This Council, together with the Mombasa Municipal Board are becoming increasingly conscious of the problem of tuberculosis in their areas and are busily devising schemes for the control of this disease.

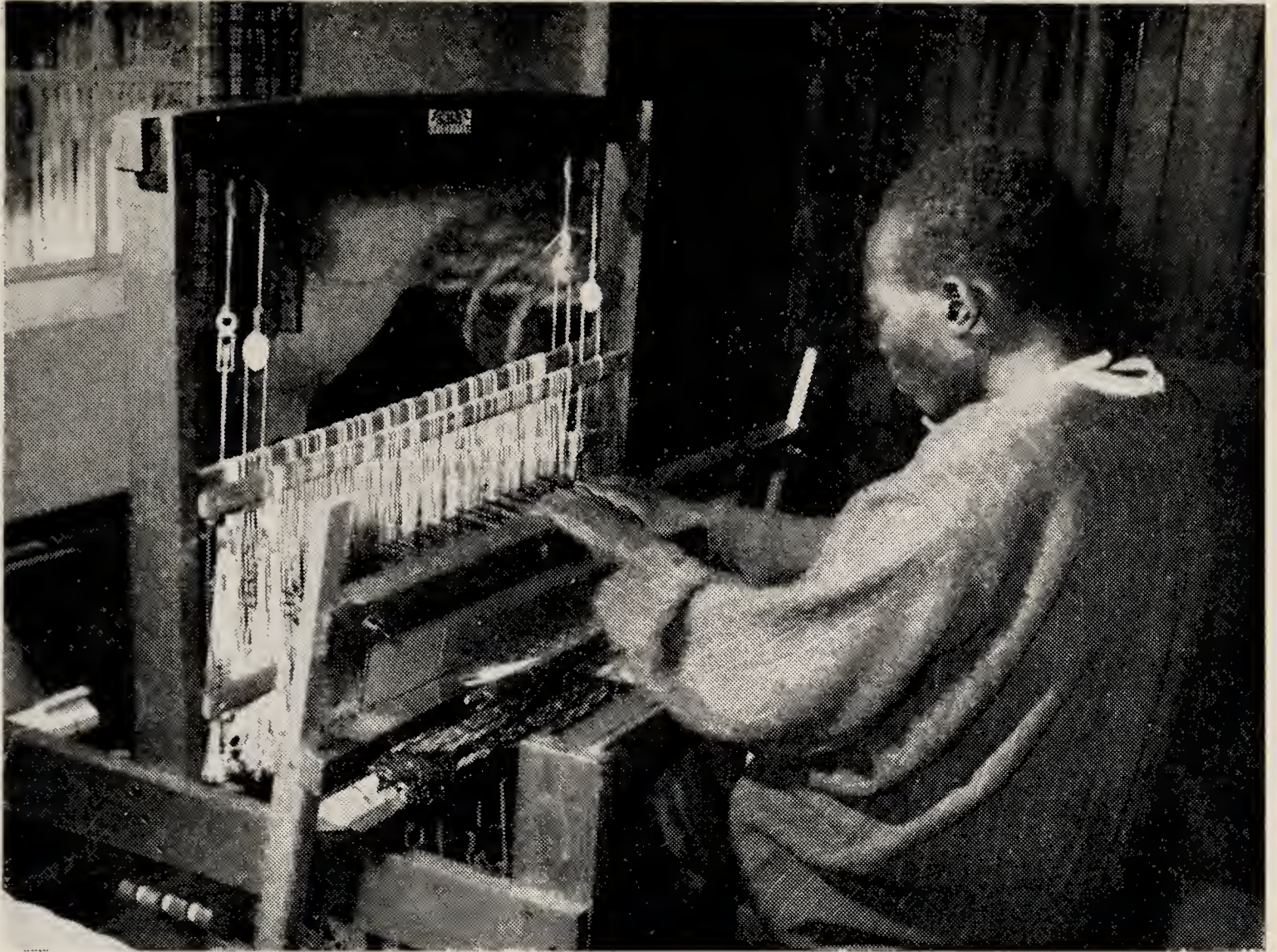
Housing

The Medical Department continues to be represented on the Central Housing Board, and assists the technical sub-committee of the board. The urgency of the financial problems inevitably associated with any scheme for the provision of housing must be balanced against the need for adequacy of space, permanency and fitness. Medical advice on these matters has always been accepted and it is to be hoped this advice has always been reasonable. The list of formal housing schemes approved by the board reflects sober and not unsatisfactory progress in the control of overcrowding.

Local Authority Housing Schemes approved by the Central Housing Board:—

	£
1. Kericho—Tenant Purchase Scheme—32 semi-detached houses with five rooms each	20,000
2. Kipsigis African District Council—Staff housing (15 houses)	8,660
3. Kisumu Municipality—Tenant Purchase Scheme—15 houses	15,000
4. Kitale Municipality—Temporary Housing Scheme with Permanent Services:—	
320 mud and wattle houses	7,000
Permanent Services	9,000
5. Mombasa Municipality—Changamwe Rental Housing—430 houses (4,000 persons)	300,000
6. Naivasha Urban District Council—Family Rental Housing (Pumice)—120 semi-detached houses	23,000
7. Naivasha County Council—Staff Housing	10,885
8. Nakuru Municipality—Family Rental Housing (1,200 persons)	52,000
9. Nakuru County Council—Rental Housing—ten Bachelor and six double-story at Molo	15,000
10. Thika Urban District Council—50 Rental Dwellings ..	43,000
11. Nairobi Western Rural District Council—Ruiru—two Rental Schemes (350 persons)	21,400
12. Nairobi County Council—Staff Housing	4,975
13. Nairobi City Council:—	
(a) Loans of £1,040,000 are earmarked for a future scheme to house 25,000 population (1,400 houses) within the next 2½ years.	
(b) Loans of £150,000 out of £250,000 have been allocated to large employers of labour to erect housing.	
14. Aberdare County Council—Staff Housing	14,982
Nyeri Urban District Council—Rental Housing	1,500
Nanyuki Urban District Council—Rental Housing	1,500
15. Eldoret Municipality—Rental Housing	23,916
16. Central Nyanza—Staff Housing	12,000
17. Machakos Township—Tenant Purchase	4,000
18. African District Council, Machakos—Staff Housing ..	11,690

The development of proper and sufficient house construction in the rural areas, especially those under control of African district councils, is a direct concern of the Sanitation Division of the Medical Department. Public finance is not involved in these circumstances but the individual builder needs much help and advice in methods and materials which will allow him to build a house of good standard and within his means. The prospects for rural rehousing and further building are bright. Much of the hard work in the past is now bearing fruit, but progress cannot be interpreted in terms of statistics. It needs the testimony of a man of long experience to express the remarkable improvement in rural housing standards over the years. The emphasis is now on encouraging the building of proper permanent housing to a good plan which is adaptable to village schemes and individual homesteads.



A patient engaged on occupational therapy.



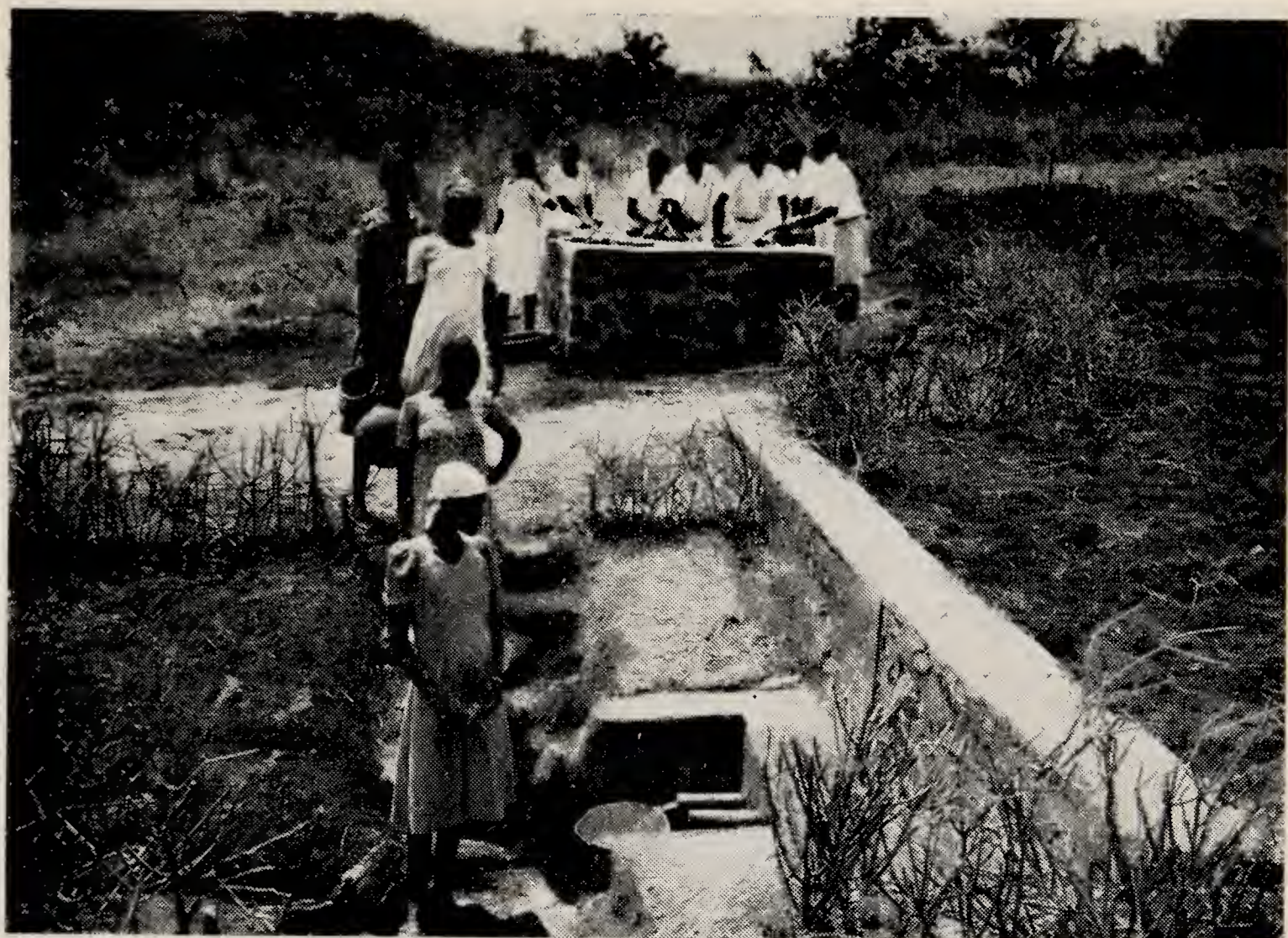
Interior of the new social hall for staff at the King George VI Hospital.



**Some wards at the new South Hill Infectious Diseases Hospital
at Nairobi.**



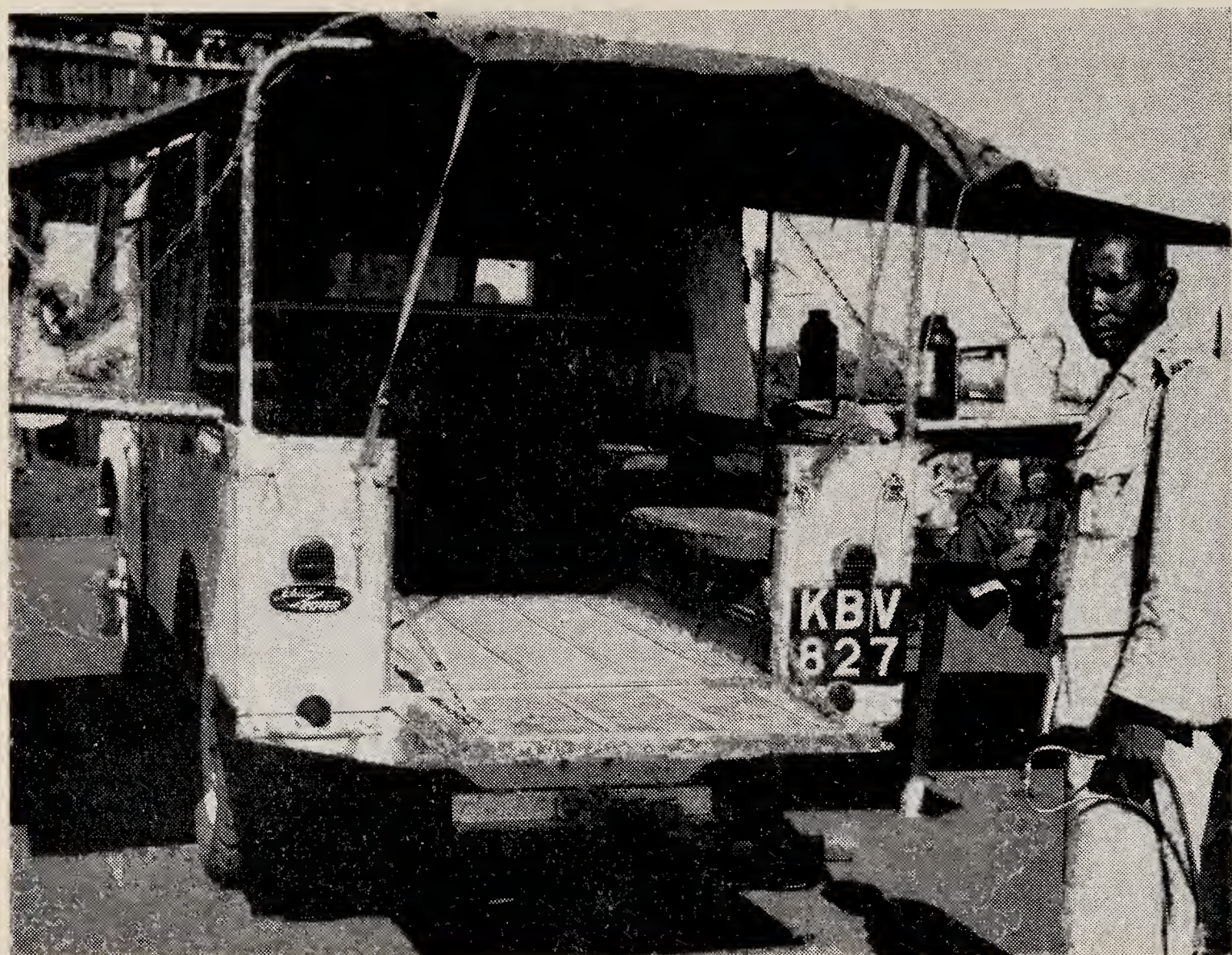
Improved rural housing on a new development scheme.



Example of a safe water supply from a protected spring.



Example of controlled new development in townships.



A mobile dispensary.



Staff of a mobile dispensary attending patients at a village in the Central Province.

PRISONS AND CAMPS

General

Since March, 1956, medical and sanitary control of prisons and detention camps has been vested in provincial medical officers and their district medical officers and health inspectors. Reports from these officers, together with a monthly return of diseases from the camps are received in Medical Headquarters. Close contact is maintained with Prisons Headquarters.

During the year the emphasis has been on improving existing camps. Certain camps have increased in size while others have been reduced or closed and demolished.

Medical Staff

The three largest institutions are Kamiti Downs Prison and Detention Camp, Nairobi Prison, and Manyani Detention Camp, all having a medical officer and a nursing sister, but with the running-down of Manyani Detention Camp, the nursing sister has been withdrawn. A specially appointed medical officer makes frequent visits to the Nairobi-Athi River group of camps. All other prisons and detention camps are visited by district medical officers, but in the Nyeri area a supernumerary medical officer has been engaged to carry out these duties.

In the larger camps a hospital assistant is generally in charge of the hospital and sick bay, while smaller camps have graded dressers. Work is carried out by detained medical staff under their supervision, but they are becoming scarcer as releases take place, though some individuals elect to stay on at the camp to assist in maintaining medical care to the detainees.

Diet

New diet standards were laid down in the latter part of the year. Whilst not differing radically from the previous scales, they have been simplified by the exclusion of any differentiation between coastal and up-country diets. On general inspection of the physical state of prisoners and detainees, one cannot but be struck with the excellent condition of these men and women as compared with others not under benevolent care. The diet is not, however, over lavish as a temporary failure in the supply of beans at one or two institutions was shortly followed by an outbreak of pellagra. Although prompt and effective medical treatment was given, the circumstances were vigorously investigated on a full scientific scale by an experienced nutritionist from England, as there are still some features in this disease which are unpredictable and puzzling.

Sickness

The general health of prisoners and detainees has been good. Diarrhoea and dysentery have been the commonest preventable diseases and vary with the season when flies become prevalent, or if a breakdown in strict hygiene has occurred.

Typhoid cases have occurred from time to time but not in epidemic form. This disease has shown very puzzling variations and has been most troublesome in the larger camps where, paradoxically, more effort has been expended in maintaining high standards of sanitation than at the smaller places.

In the realm of deficiency diseases and setting aside pellagra, cases of ariboflavinosis have been seen, especially if the patient has some long standing liver disease or has recently recovered from an enteric infection.

Pulmonary tuberculosis in the prison and detained population is no more prevalent than in the country in general. If possible, detainees with tuberculosis are released to receive treatment at their district hospital. Convicts and detainees who cannot be released are sent either to Nairobi Prison or Kamiti Downs where special hospitals have been built for treating pulmonary tuberculosis.

Apart from Coast Province camps, such as Hola, proved cases of malaria are found chiefly in camps built in connexion with irrigation schemes as at Thiba, Gathigiri and Marigat. This natural hazard of irrigation schemes in the tropics has been minimized by maintaining a close observation on the incidence of the disease and treating all dwellings, if necessary, with residual insecticide.

In conclusion, it is a pleasure to record that the energies formerly devoted to maintaining prisons and detention camps in good order have now been diverted to the problems of development and resettlement in new areas where the State's former charges now work as free men.

COMMUNICABLE DISEASES

Smallpox

There was a small and very local incidence of variola minor in 1955, this increased and spread during 1956, practically all areas of the Colony being affected, though in varying degree. There was a gradual overall increase up to September, when there was a maximum weekly notification of 25 cases, then a slow fall until the end of the year. The total number of cases for the year was 374 with one death. Very many vaccinations were performed, but as the disease appears to be highly infectious, though mild, scattered cases continued to occur. They were more frequent in the Rift Valley Province where conditions militated against a complete vaccination of the population.

Plague

A total of seven cases were reported, with one death. This disease is certainly losing its significance in this country, particularly now that we have such a valuable therapeutic in the form of streptomycin and a prophylactic agent in the form of potent residual insecticides.

Malaria

1956 was a dry year, rainfall during the normal malaria seasons being very low, and for this reason there were no outstanding epidemics. Insecticidal spraying under the Nandi Dieltrin Scheme was repeated and in January this year a marked effect in the parasite rate became noticeable for the first time. Prior to this, the malarial parasite rate in the general population had remained at round about 5 per cent. It was essentially the same figure as had resulted from the previous mass treatment with daraprim over a period of two years. In January, 1956, the figure was found to be 2.1 per cent only.

Most of the malaria in the Nandi District has been the sub-tertian variety in which recrudescence may be experienced up to one year after initial infection. This is probably the reason why the drop in the parasite rate did not become noticeable until a year after the first spraying. Another interesting finding at the time of the last survey was that 25 per cent of the parasites were those of quartan malaria which naturally persists in the blood for a very much longer period than those of sub-tertian malaria.

Whilst the blood parasite rate has been falling, the hut mosquito index has fallen even more, having been reduced to one-tenth of the value which was the normal rate before spraying began. The present index is .01. Mosquito vectors are now extremely difficult to find in any dwelling, nor is it possible to discover any others who may be resting in alternative places such as grain stores, latrines, or cattle byres.

The spraying has had one unforeseen effect. After the initial spraying in 1955 flies practically disappeared, to return in very much larger number after the spraying in 1956. It is thought that the insecticide may destroy the normal predatory insects, notably ants, whilst flies rapidly become resistant. This important effect merits more investigation before it can be definitely stated that chlorinated hydrocarbon insecticides actually increase the fly population instead of exterminating the pest.

Trypanosomiasis

This disease has not been of very great significance during the year, a total of 32 cases being reported. What is of vital interest is the finding of *T. rhodesiense* on the northern shores of Lake Victoria bordering on Uganda. The parasite was found in *Glossina pallidipes* which considerably enhances the epidemiological threat.

Typhoid

This disease has been widespread but scattered in its distribution. As said before, detention camps have been notably free from this disease. Improved sanitation and the free use of T.A.B. vaccine have been the normal method of control. Where outbreaks have been traced to a water supply, such as a sluggish stream, the only immediate protection has been to advise all to boil their drinking water. A brisk outbreak occurred in the Nandi District, concurrently with the increase in the fly population.

Poliomyelitis

This disease has been less prevalent than in the previous year, which was itself not an epidemic year. Few cases were reported in the first 48 weeks, the average number being 1.4 per week. During the month of December, however, the weekly average rose to four, most of the cases being in the Nairobi area. Whilst not of necessity the forerunner of an epidemic, this seasonal rise, which was not shown at the end of 1955, has to be watched with caution. A point of interest has been the very young age of practically all the African cases. Most have been under the age of three years, and the assumption is that, not having been exposed to the 1954 outbreak, they constitute a pool of susceptible material ready for attack by the virus.

The implication is that Kenya is now no longer a reservoir of endemic poliomyelitis where a general average of 90–120 cases of the disease may be regularly expected every year. With the greater concentration of population and improvement in communication, it is to be expected that the disease will take on a more epidemic nature with peaks at about every three years and with fewer cases being notified in the intervals between. Greater efforts to improve the standards of public and personal hygiene help to keep the disease under control, but the most effective remedy for the situation is to develop an artificial immunity in the population through inoculation. Supplies of inactivated virus vaccine are expected in Kenya, but the greatest promise is offered by the development of an attenuated virus vaccine which can be taken by mouth. As the complete safety of this latter type cannot yet be guaranteed, it will be some time before its use can be allowed in Kenya.

Schistosomiasis

Notwithstanding that there has been no change in the prevalence of this disease, much thought and research has still been invoked by the necessity to prevent its further spread and its introduction into the new irrigation areas. Potential snail vectors have been found in unexpected places but the investigations have been complicated by the necessity to distinguish the infection in the snail as between animal and human types. Each district poses its own peculiar problems and there is a vast store of uncorrelated observations on this disease in East Africa. A scientific co-ordinating committee was set up at the request of the Administrator of the East Africa High Commission with an aim to unify the laboratory and field researches being carried out in all territories.

Schistosomiasis infection of the bowel is the more important at higher altitudes and the more difficult to diagnose and treat. Urinary schistosomiasis is very common at the coast, especially in children. Control of both types is difficult, except possibly in formal irrigation schemes where the control of water flow is absolute. The disease is eminently preventible, but not by large-scale measures undertaken as a public health enterprise. Prevention lies in personal avoidance of all risks which are known to favour infection. No onerous restrictions are involved and all that is needed is the personal knowledge and the will of the individual to avoid the disease. The eradication of schistosomiasis presents a challenge to the proponents of health education.

Kala-azar

Kala-azar has now been shown to be very much more widespread than was at one time realized and cases have been reported from the following districts:—

Kitui, Meru, East and West Suk and the Northern Frontier Province.

All are desert or semi-desert areas.

An intensive search for missed and hidden cases of the disease was made in the Kitui District, which naturally swelled the numbers of those requiring treatment. Various methods of diagnosis have been used in the past but the routine method of diagnosis now is that of sternal puncture and a search for the parasite. This method appears to be far more reliable than that of splenic puncture. In a selected group of cases suspected to be suffering from kala-azar, sternal puncture could be depended upon for the demonstration of parasites in 30 per cent of the cases compared with 10 per cent revealed by splenic puncture.

The treatment of kala-azar is long and uncertain. It is fortunately confined to the more arid, sparsely populated areas and in this way can be assumed to be partially contained. An enormous amount of research has been put into the effort to incriminate the exact insect vector, among the many species of sandfly to be found in the country. Until the vector can be found and its habits studied, it will not be possible to forecast the limits to which the disease will range. A full account of the result of the year's researches is given in the report from the Division of Insect-borne Diseases.

Tuberculosis

The policy, which was gradually evolved over the previous five years in regard to prevention and treatment of tuberculosis, has crystallized into a very definite pattern. Experience to date confirms the estimate made in the Colony Tuberculosis Survey of 1949 that there are some 50,000 cases of tuberculosis in Kenya, and that the main foci of dissemination are the large centres of population such as Nairobi, Mombasa and Kisumu. It is clearly quite impossible to deal with this problem along what were considered orthodox lines five to

ten years ago, i.e. by hospital or sanatorium treatment of all cases. For this reason a closely integrated system of domiciliary treatment has been developed, based on district hospitals and health centres. Though this system is as yet far from perfect, it is working well.

There is now a total of 750 tuberculosis beds in the Colony—180 at Port Reitz Chest Hospital, Mombasa, 120 at King George VI Hospital, Nairobi, 50 at each of the provincial hospitals (Nyeri, Nakuru, Kisumu and Machakos), and a further 250 distributed amongst the various district hospitals. In general, the six major hospitals listed above treat the more difficult cases. Facilities for chest surgery are available at both Nairobi and Mombasa. This not inconsiderable number of institutional beds is nevertheless quite inadequate to meet the need for treating all cases in hospital. The plan to treat the majority of cases at home under supervision depends upon the effectiveness of the potent new drugs now available.

The number of new cases diagnosed in 1956 was 5,023 as against 3,552 in 1955.

This rise reflects not an increased incidence but rather the vigour with which the whole problem is now being tackled. Special emphasis is being placed on prevention—by health education in regard to housing and nutrition and by preventive measures in regard to isolation and the tracing of contacts of known cases.

A considerable amount of preliminary work has been done in regard to the W.H.O./U.N.I.C.E.F. assisted project for Nairobi City. This project, due to commence in January, 1958, will involve the Mantoux testing and miniature X-ray examination of some 150,000 Nairobi inhabitants. The estimated cost of the project over the two years to come is considerable and the value of the contribution to be made by the World Health Organization and the United Nations Children's Fund will be £78,000.

DIVISION OF INSECT-BORNE DISEASES

The role of this division is to provide expert advice to public health authorities in new and routine control measures. This means much misdirected effort is avoided.

Research is another function of the division, which this year has resulted in discoveries of some considerable importance, most of which are applicable to the day-to-day work of the Department. In addition to this, the discovery with regard to the breeding habits of certain mosquitoes at the coast and of microfilaria in domestic animals is of pure scientific and academic importance. These latter two discoveries have attracted the attention of experts in the United Kingdom and it is possible that the knowledge so gained may be of later practical value. Experience of the division's work in the past would indicate that this is by no means a remote fancy, as the discovery of the exo-erythrocytic stage of malaria was made in the division's laboratories in Nairobi, originally as an observation of only pure scientific importance.

Malaria and Mosquito Control Measures

A total of 39,000 buildings were sprayed with dieldrin in the Nandi area. A striking feature was the almost complete absence of anopheline vectors both from the treated and control areas throughout the year. Detailed parasite results for 1956 are not yet available, but there seems little doubt that transmission has been almost completely interrupted in the treated area, and that the severe annual epidemics have ceased for the time being. The final mass spraying will be carried out in 1957, but entomological and parasitological observations will be continued for several years.

The European farms were surveyed in the Trans Nzoia and Uasin Gishu areas to the north of the Nandi Reserve, and the distribution of malaria was found to be very patchy in this area. Parasite rates in children varied from 6 to 50 per cent. In April and May the whole of Malindi and a number of peri-urban villages were sprayed with dieldrin (50 per cent wettable powder). Altogether 1,550 buildings and premises were treated. European hotels and houses were sprayed with dieldrex. No *Aedes aegypti* or *A. gambiae* have been caught since the spraying but *C. fatigans* was almost unaffected. The spraying was followed by a plague of flies which is discussed elsewhere. Other places on the coast sprayed with dieldrin were Mazeras (326 premises), Mariakani (329 premises), the Mkobe Works Camp and the Shimba Hill Settlement Scheme.

In September 50 blood smears were examined from premises in the Hola Works Camp on the Tana River; all were negative.

There has been much activity in the Changamwe-Kwa Shee-Jomvu area near Mombasa and large areas have been cleared with bulldozers for new railway alignments. Numerous pools formed after heavy rain in December but no *A. gambiae* larvae have yet appeared in any of them. It is obvious that one of the greatest mosquito nuisances in East Africa is *C. fatigans* which breeds in pit latrines and sewerage tanks, and bites man with the utmost viciousness. The species is very resistant to most insecticides and it is, therefore, interesting to report that the phosphorous compound Diazinon (2 parts per million) is extremely effective against its larvae.

House Flies

As noted there was a great increase in flies after Malindi was sprayed with dieldrin. A similar increase was observed in Nandi. It is not yet known whether this is a coincidence or not, but it is possible that dieldrin has killed predators that feed on larvae and limit fly populations. Diazinon is very effective against flies when sprayed on the walls of kitchens or used as a bait.

A very severe infestation of flies was investigated at the Nairobi sewerage works. Fly pupae and larvae were present in enormous numbers in evaporating pans. The infestation was completely controlled by adding Diazinon (1 part in 10,000) to sludge in pipes feeding the beds.

Kala-azar and Sandflies

During the year work was rather intermittent in the kala-azar areas of Tseikuru and Marigat. 14 *P. martini* were fed on a human case of kala-azar and 12 specimens on a heavily infected hamster; none became infected. 88 *P. martini* taken on man were negative on dissection. Only very few *P. martini* were caught at Tseikuru. 106 *P. garnhami* were fed on a kala-azar patient; 25 died and the remaining 81 were negative on dissection.

At Chini-ya-Mlima near Marigat *P. schwetzi* was found in hollows in the bank of a watercourse used as a saltlick by goats. One evening 38 *P. schwetzi* were caught biting man in this place.

It is still uncertain which is the vector or vectors at Tseikuru and Marigat. *P. garnhami* and *P. martini* are suspect but have not yet been definitely implicated. *P. schwetzi* is anthropophilic and common to both areas, but is unlikely to be a vector as it does not belong to the *P. major* group. *P. martini* is the most likely vector in East Africa.

Attempts have been made to breed sandflies. This is most difficult and no colonies have been established. It was hoped to obtain colonies of *P. martini*, *P. garnhami* and *P. schwetzi* and to feed specimens on infected hamsters and humans.

Interesting observations were made in the field. Thus the air temperature of the ventilation shafts of termite hills was 28–30° C. and the humidity in shafts worked by ants 95 per cent. The ventilation shafts are of great interest as they harbour vast populations of sandflies at certain times of the year. They probably act as resting places. Attempts made to breed sandflies in jars lined with a mixture of plaster of paris and charcoal were largely unsuccessful. Eggs and first-stage larvae were obtained but the latter died. The earthenware pot method of Adler and Theodor also has not worked. The Unsworth-Gordon plaster of paris blocks were the most successful, and a few adult *P. schwetzi* were obtained. The eggs of a number of sandflies have been studied. In December Professor Theodor arrived full of enthusiasm from Jerusalem. He placed *P. garnhami* and other sandfly species in earthenware pots. Eggs were laid, many hatched but all the larvae died.

A large number of animals from the Kerio Valley were examined for *Leishmania*, but all spleen smears were negative. These included *Arvicanthis* sp., *M. coucha* and ground squirrels. In February four young dogs were inoculated with a heavy culture of *L. donovani*. All survived. This is interesting and suggests not only that dogs are unlikely to be reservoirs in Kenya, but that they are immune to the local strain of *L. donovani*. More dogs will be inoculated with pooled spleens from infected hamsters.

Tick Typhus

Rickettsiae which cause typhus in humans have been isolated from ticks round Nairobi. Ticks collected in Nairobi include *H. leachei*, *R. simus*, *R. sanguineus*, *R. appendiculatus*, *R. pulchellus* and *Amblyomma variegatum*. The first three species are common on dogs and *H. leachei* and *R. simus* are sometimes present in rodent burrows (*Arvicanthus* and *Otomys* sp.). Seven strains of *Rickettsiae* were isolated from *H. leachei*, one from *R. simus* and another from *A. variegatum*. The first two species are the most likely vectors in the Nairobi area.

The sera of 23 Nairobi dogs agglutinated strains of *B. proteus*. Titres for OX19 and OXK were higher than OX2. Attempts to isolate *Rickettsiae* from three dogs with positive Weil-Felix reactions failed. The sera of 24 *Arvicanthus abyssinicus*, 18 *Otomys angoniensis*, two *Mastomys coucha* and one *Lemniscomys striatus* gave negative Weil-Felix reactions. Sera of three out of 12 *Rattus* sp. agglutinated *Proteus* OX19 in titres of 1:120 to 1:240.

It is strange that all the *R. sanguineus* tested were negative for *Rickettsiae* because this tick has always been regarded as a most important vector in East Africa. The role of *R. sanguineus* needs further investigation.

Trypanosomiasis

The search for a rodent reservoir continues with particular attention being paid to *Otomys*, the swamp rat. A most interesting discovery was the isolation of a strain of *T. rhodesiense* from *G. pallidipes* in Nyanza. It seems possible that the infection exists in endemic form and that human trypanosomiasis in Kenya is not entirely of the gambian variety as previously supposed. "Wild-caught" *G. pallidipes* and *G. palpalis* were fed on white rats and 27 strains of trypanosomes isolated. With the exception cited above most infections were either *T. brucei* or *T. congolense*. 19 infections were from *G. pallidipes* and four from *G. palpalis*.

Bush was sprayed with dieldrin against *G. palpalis* in the Kuja-Migori area, along the Lake shore near Sakwa, and on Sifu Island in Lake Victoria. Sifu Island received four applications and there was a marked reduction in *G. palpalis*, but not complete eradication.

The epidemiology of sleeping sickness in Central Nyanza is interesting because, apparently, Gambian and Rhodesian sleeping sickness exist side by side. Perhaps the two transmission cycles which depend on different vectors are interrelated in some way. Perhaps *T. rhodesiense* and *T. gambiense* are the same. At present the epidemiology of East African sleeping sickness is in a terrible muddle, and all who work on the parasitology of this disease make the muddle worse. The situation in Central Nyanza is of profound ecological and parasitological interest. It is also an important economic problem as the presence of human sleeping sickness prohibits resettlement by man.

Onchocerciasis

No early stages of *S. neavei* have been seen on crabs or adult flies caught in the Kakamega-Kaimosi area since January when a residual focus was found near Yala. It would thus appear that this ambitious scheme of eradication, so ably carried out, has been successful.

Schistosomiasis

A number of observations have been made in Kitui and near Thika. It has been shown that immature *Biomphalaria pfeifferi* and *P. globosus* are efficient intermediate hosts of *S. mansoni* and *S. haematobium* respectively. *P. globosus* is also a host of *S. bovis*. Hamsters have been brought in contact with cercariae from naturally infected snails and have proved excellent experimental animals; adult schistosomes were easily obtained.

Streams at Kitui and canals in the Mwea/Tebere irrigation scheme were treated with different concentrations of copper sulphate and sodium pentachlorophenate. Results were inconclusive and so are not given in detail here. *B. pfeifferi* were collected from irrigation canals at Mwea/Tebere and some were infected with *S. mansoni*. *B. forskalii* were found at Kitui; none were infected. Many *B. pfeifferi* were collected at Barweza irrigation scheme in the Kerio Valley.

Relapsing Fever

Over 1,000 *O. savignyi* from British Somaliland and the Northern Province of Kenya were inoculated into white rats with negative results. It is extremely unlikely that *O. savignyi* is a vector of relapsing fever in nature.

Filariasis

There has been considerable work on filariasis and much data has been collected at Faza on Patte Island; only salient points will be summarized here:—

- (1) About 32 per cent of the Faza people have the microfilariae of *W. bancrofti* in their blood. The rate is higher in males. 21 cases of elephantiasis were seen and 22 hydroceles. Prisoners and warders on Manda were negative.
- (2) Animals were examined for filaria. The most interesting find was a *Wuchereria* of the malayi-type in cats, dogs and genet cats. It is not *W. malayi* but a new species that will be described and named by Professor Buckley. It does not occur in the blood of humans. The cats and dogs are also infected with *Dirofilaria repens* with *D. immitis* and perhaps a *Dipet*. Monkeys are infected with *D. aethiops* and there is a sheathed microfilaria in donkeys. *Tatera* and *Rattus* sp. contained no filariae.

- (3) The predominant mosquito is *Aedes pembaensis* which bites man in houses as well as outside. It lays its eggs on the meri of crabs (*Sesarma* sp.), the larvae live in the salt water of crab holes and the adult is infected with filariae. The infection rate in houses is 1–2 per cent and in the bush 3–6 per cent. It is probably the vector of *malayi*-type filaria and *Dirofilaria repens* both of which develop rapidly in this mosquito, larvae reaching the proboscis in $8\frac{1}{2}$ to 9 days. Whether it transmits *W. bancrofti* is not yet known. *C. fatigans* and *Aedes aegypti* also occur in houses. About 30 per cent of *C. fatigans* are infected and it is probably an important vector of *W. bancrofti*. It is, however, often present in very small numbers and during December it almost disappeared. *C. fatigans* has also been found infected with *Dirofilaria* sp. Third stage larvae have never been seen in *Aedes aegypti*.

Conclusion

The Senior Parasitologist sends his report in with the observation that “our approach to epidemiology is essentially ecological and holistic. We do not confine our activities to ‘counting the hairs in the hindquarters of mosquitoes’ We do not spend all the time in the laboratories but venture into the open air. Ours is a natural history approach”.

VISITORS

The following visitors from overseas were shown various aspects of the Department's work:—

PROFESSOR P. C. C. GARNHAM, MAJ.-GEN. SIR GORDON COVELL, and DR. R. LEWTHWAITE, Secretary of State's Representatives on the East African Council for Medical Research.

DR. R. V. WARDEKAR, Secretary, Gandhi Memorial Leprosy Foundation, Wardha, India.

MR. H. C. P. J. FRAZER, M.P.

MR. R. W. WILLIAMS, M.P.

DR. W. W. PAYNE, Hospital for Sick Children, Great Ormond Street, W.C.1.

DR. R. A. E. GALLEY, PH.D., World Health Organization Consultant on Pesticides.

DR. J. M. BENGUA, World Health Organization Inter-Regional Adviser on Nutrition.

DR. J. HOLM, Chief of the Tuberculosis Section, World Health Organization, Geneva.

MISS G. M. KIRBY, Matron of the Hospital for Sick Children, Great Ormond Street, W.C.1.

DR. SINCLAIR-LOUTIT, World Health Organization.

DR. E. B. WORTHINGTON, Member of the Scientific Council for Africa South of the Sahara, World Health Organization.

PROFESSOR T. H. DAVEY, O.B.E., Professor of Tropical Hygiene, Liverpool University.

MISS L. CREELMAN, Chief of the Nursing Section, World Health Organization Geneva.

MR. R. L. BOGUE, Health Education Department of the Public Section, World Health Organization.

DR. PASCUA, Division of Epidemiological and Health Statistical Services, World Health Organization, Geneva.

DR. F. J. C. CAMBOURNAC, Director of the Regional Office for Africa, World Health Organization.

DR. V. A. SUTTER, Assistant Director-General, World Health Organization.

DR. G. J. STOTT, Nutrition Survey, Mauritius. World Health Organization Fellow.

MRS. JOHNSON, wife of Labour M.P. for Rugby.

MR. W. H. CHINN, C.M.G., Adviser to the Secretary of State on Social Welfare.

DR. M. OVAZZA, World Health Organization Fellow in charge Entomological Onchocerciasis Survey in French West Africa.

Members of the Ford Foundation Group of U.S.A.

PROFESSOR J. J. C. BUCKLEY, Professor of Helminthology, London School of Hygiene and Tropical Medicine.

DR. E. R. CULLINAN, Physician to St. Bartholomew's Hospital, E.C.4.

MEDICAL DEPARTMENT LIBRARY

Articles Published by Members of the Department, 1956

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COOKE, E. R. N. and J. C. BROTHERTON—“Q Fever in Kenya.” *E.Afr.Med.J.* Vol. 33, p. 125.

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GILLESPIE, T. H. F.—“The Late Results of Burning and Treatment of Deformities Arising Therefrom.” *E.Afr.Med.J.* Vol. 33, p. 139.

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GUGGISBERG, C. A. W.—See Heisch, Guggisberg and Teesdale.

HARRIES, J. R.—“Amyotrophic Lateral Sclerosis in Africans.” *E.Afr.Med.J.* Vol. 33, p. 85.

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———“Experiences in Respiratory Paralysis Treated in the Respiratory Unit at Nairobi.” *E.Afr.Med.J.* Vol. 33, p. 1.

———See Lawes and Harries.

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- HEISCH, R. B.—See Manson-Bahr and Heisch.
- IKATA, M.—See Heisch, Goiny and Ikata.
- JARVIS, J. F.—“Egas Moniz, His Contribution to Arteriography.” *E.Afr.Med.J.* Vol. 33, p. 363.
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- WALKER, A. J.—“Poliomyelitis in Kenya.” *E.Afr.Med.J.* Vol. 33, p. 169.
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* These two articles are almost word for word the same.

RETURN OF DISEASES—OUT-PATIENTS, 1956

N.O.S. means "Not Otherwise Specified," i.e. N.O.S. 136-138 means all other diseases included between these numbers in the International Classification to be entered in this line if not otherwise specified in any line elsewhere.

CODE	DISEASES	EUROPEAN			ASIAN			AFRICAN		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
001-008	INFECTIOUS AND PARASITIC DISEASES									
010-019	Respiratory Tuberculosis	38	14	52	1,351	855	2,206	4,702	2,792	7,494
020-029	Other Tuberculosis	1	1	2	1	1	2	1,275	995	2,270
030-035	Syphilis	1	1	2	397	713	1,110	5,618	4,613	10,231
036-039	Gonorrhoea	3	—	3	571	123	694	13,864	7,311	21,175
045	Other Venereal Diseases	2	—	2	6	—	6	1,065	678	1,743
046	Bacillary Dysentery	13	10	23	223	104	327	4,473	2,707	7,180
055	Amoebic Dysentery	7	5	12	57	52	109	2,451	1,337	3,552
056	Diphtheria	—	—	—	—	—	—	70	27	97
057, 340	Whooping Cough	1	4	5	95	59	154	6,620	5,743	12,363
058	Meningitis (excluding Tuberculosis)	—	—	—	—	—	—	8	16	24
060	Plague	—	—	—	—	—	—	—	—	—
061	Leprosy	—	—	—	1	1	2	519	342	861
062	Tetanus	—	—	—	—	—	—	74	54	128
071	Anthrax	—	—	—	6	10	16	286	250	536
073	Relapsing Fever	—	—	—	—	—	—	15	10	25
080	Yaws	—	—	—	3	—	3	3,035	2,469	5,504
084	Acute Poliomyelitis	—	—	—	—	—	—	13	29	42
084	Variola Major	—	—	—	—	—	—	111	29	140
084	Variola Minor	—	5	5	—	—	—	87	40	127
085	Measles	7	25	32	46	36	82	4,328	4,512	8,840
086	Rubella	—	—	—	—	—	—	—	—	—
087	Chicken-pox	3	27	30	24	10	34	2,610	1,695	4,305
088	Herpes Zoster	5	3	8	43	20	63	322	211	533
089	Mumps	3	5	8	2	—	2	2,387	2,038	17,761
092	Infectious Hepatitis	2	—	2	14	10	24	461	311	533
095	Trachoma	—	—	—	21	12	33	2,063	2,103	4,166
110	B.T. Malaria	—	—	—	6	3	9	2,417	1,708	4,125
111	Q.T. Malaria	8	5	13	98	55	153	4,263	2,437	6,700
112	S.T. Malaria	73	38	111	—	—	—	9,324	6,532	4,166
115	Blackwater	—	—	—	—	—	—	—	—	—
121	Trypanosomiasis	—	—	—	—	—	—	19	8	27
120.0	Schistosomiasis (Haematobium)	—	—	—	4	—	4	2,704	1,006	3,710
123.1	Schistosomiasis (Mansoni)	2	—	2	1	—	1	395	231	626
126	Tapeworm	3	3	6	562	125	687	11,641	6,120	17,761
127	Onchoceroasis	—	—	—	—	—	—	2	6	8
129	Ankylostomiasis	1	—	1	46	22	68	8,563	11,711	20,274

RETURN OF DISEASES—OUT-PATIENTS, 1956—(Contd.)

CODE	DISEASES	EUROPEAN			ASIAN		AFRICAN	
		Male	Female	Total	Male	Female	Male	Total
130.0 131 135 N.O.S. 036-138	INFECTIOUS AND PARASITIC DISEASES—(Contd.)							
	Ascariasis	2	4	6	63	51	9,714	19,122
	Tinea	45	21	66	41	31	3,080	6,314
	Scabies	1	—	1	366	184	12,257	23,121
	Other Infective and Parasitic Diseases	17	9	26	112	81	10,968	2,160
140-205 210-239 241 286.6 290-293 N.O.S. 240-299	NEW GROWTHS							
	Malignant Neoplasms	2	1	3	2	—	108	217
	Benign and other Neoplasms	27	31	58	33	27	648	1,065
	ALLERGIC METABOLIC AND BLOOD DISEASES							
	Asthma	20	13	33	89	52	2,563	4,173
300-326 353 N.O.S. 330-369	Kwashiorkor	—	1	1	20	12	2,181	4,176
	Anaemia	11	30	41	56	31	1,953	5,515
	Other Allergic, Endocrine, Metabolic and Nutritional Diseases	70	53	123	98	67	3,433	5,995
	DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS							
	Mental Disorder	—	—	—	11	5	223	370
370 373 389 N.O.S. 371-388 390-398	Epilepsy	—	—	—	9	—	302	487
	Other Diseases of the Nervous System and Sense Organs	57	77	134	77	47	4,392	6,400
	DISEASES OF EYE AND EAR							
	Conjunctivitis and Ophthalmia	21	45	66	636	316	25,620	46,776
	Stye	8	2	10	37	15	1,524	2,602
400-447 450-468 490-493	Blindness	4	19	23	10	8	246	380
	Other Diseases of Eye (not Trachoma)	31	43	74	117	62	3,261	5,484
	Diseases of Ear and Mastoid Process	54	42	97	481	372	12,214	29,491
	CIRCULATORY DISEASES							
	Diseases of the Heart	7	9	16	18	4	226	673
	Other Circulatory Diseases	12	13	25	27	15	600	1,082
	RESPIRATORY DISEASE							
	Pneumonia	3	3	6	6,376	711	4,531	13,203

RETURN OF DISEASES—OUT-PATIENTS, 1956—(Contd.)

CODE	DISEASES	EUROPEAN			ASIAN		AFRICAN	
		Male	Female	Total	Male	Female	Male	Female
N.O.S. 470-527	Other Diseases of the Respiratory System (including Coryza, Pharyngitis and Bronchitis)	348	562	910	3,824	2,045	127,624	107,454
530-535	ALIMENTARY DISEASES							
537	Dental Caries—Other Disease of Teeth and Gums	12	15	27	197	102	21,411	10,823
536-538	Glossitis	1	—	1	3	3	180	128
560-561, 570	Stomatitis and Other Diseases of the Buccal Cavity and Salivary Glands	67	176	243	395	282	9,382	8,331
571.0	Intestinal Obstruction and Hernia	3	1	4	10	2	558	197
571.1	Gastro-enteritis under 2 years	16	21	37	374	326	11,496	11,108
N.O.S. 539-587	Gastro-enteritis over 2 years	66	53	118	448	210	12,353	11,613
	Other Diseases of Alimentary System	67	60	127	435	273	43,547	50,752
613	GENITO-URINARY DISEASES							
N.O.S. 590-617	Hydrocele	30	—	30	1	—	476	—
636	Other Diseases of Genito-Urinary System and Male Genital Organs	154	154	154	55	—	4,468	—
N.O.S. 620-637	Sterility (Female)	—	81	81	—	31	—	2,411
650-652	Other Diseases of Uterus and Female Genital Organs	—	13	13	—	393	—	6,372
N.O.S. 640-689	Normal Pregnancy	1	40	41	—	597	—	11,821
	Abortion	44	17	63	—	36	—	2,672
690-698	Other Diseases of Childbirth	113	91	204	9	7	—	286
715	SKIN AND MUSCULO-SKELETAL DISEASES							
N.O.S. 700-716	Boils, and Infections of Skin and Subcutaneous Tissues	5	4	9	538	260	19,366	13,281
720-759	Chronic Ulcers	51	78	129	160	45	57,718	29,342
	Other Diseases of the Skin	107	97	204	345	239	10,769	8,296
	Diseases of Bones, Joints, Muscles and Malformation	—	—	—	—	—	—	—

RETURN OF DISEASES—OUT-PATIENTS, 1956—(Contd.)

CODE	DISEASES	EUROPEAN			ASIAN		AFRICAN		
		Male	Female	Total	Male	Female	Male	Female	Total
760-776 788.8 N.O.S.	ILL-DEFINED DISEASES AND INJURIES Neonatal Diseases Pyrexia of Unknown Origin	229	61	305	2	1	1,759	984	1,143
		103	128	231	2,472	244	31,359	35,122	66,481
780-795 N.800-N.839 N.840-N.848 N.930-N.936 N.940-N.949 N.960-N.979 N.O.S.	All Other Ill-defined caused of Morbidity Fractures and Dislocations Sprains Foreign Bodies Burns and Scalds Poisoning	125	134	259	31	25	8,427	3,672	12,099
		52	17	69	120	15	3,991	2,131	6,122
		25	16	41	287	57	8,765	3,558	12,323
		16	9	25	99	36	3,242	1,753	4,995
		5	6	11	154	72	7,549	6,229	13,778
		2	1	3	—	—	332	170	502
N.850-N.999 Y.00-Y.18	Other Injuries and Wounds Examination	78	61	139	2,178	773	63,063	29,247	92,310
		9	1	10	2,278	1,095	16,128	4,160	20,288
	TOTAL	2,003	2,393	4,396	26,699	12,790	761,490	507,621	1,313,041

RETURN OF DISEASES—IN-PATIENTS, 1956

CODE	LIST NO.	DISEASES	EUROPEAN			ASIAN			AFRICAN		
			ADMISSION		Total Deaths	ADMISSION		Total Deaths	ADMISSION		Total Deaths
			Male	Female		Male	Female		Male	Female	
		GENERAL INFECTIOUS AND PARASITIC DISEASES									
	A.	Respiratory Tuberculosis	11	6	17	2	48	143	2,452	1,725	4,177
001-008	1	T.B. of Meninges and Central Nervous System	—	—	—	—	—	—	—	—	—
010	2	T.B. of Intestines, Peritoneum and Mesenteric Glands	—	—	—	—	—	—	119	72	191
011	3	T.B. of Bones and Joints	—	—	—	—	—	—	130	115	245
012, 013	4	T.B.—All other Forms	—	—	—	—	—	—	445	259	704
014-019	5	Congenital Syphilis	—	—	—	—	—	—	398	281	679
020	6	Primary Syphilis	—	—	—	—	—	—	59	44	103
021.0, 021.1	7	Secondary Syphilis	—	—	—	—	—	—	108	96	204
021.2-021.4	7	Tabes Dorsalis	—	—	—	—	—	—	211	186	397
024	8	General Paralysis of Insane	—	—	—	—	—	—	2	1	3
025	9	Cardio Vascular Syphilis	—	—	—	—	—	—	34	11	45
022, 023	10	All other Syphilis	—	—	—	—	—	—	23	12	35
026-029	10	Gonorrhoea, Genito-Urinary	—	—	—	—	—	—	117	60	177
030, 031	11	Gonococcal Infection of Eye	—	—	—	—	—	—	491	319	810
033	11	Other Gonococcal Infections	—	—	—	—	—	—	56	50	106
032, 034, 035	11	Typhoid Fever	1	—	1	—	—	—	130	89	219
040	12	Salmonella Infections	—	1	1	—	—	—	851	794	1,645
041, 042	13	Cholera	—	—	—	—	—	—	8	2	10
043	14	Brucellosis	—	—	—	—	—	—	—	—	—
044	15	Bacillary Dysentery	7	4	11	—	—	—	122	41	163
045	16	Amoebiasis	4	1	5	—	—	—	1,179	818	1,997
046	16	Other Unspecified Dysentery	6	—	6	—	—	—	796	376	1,172
047, 048	16	Scarlet Fever	—	—	—	—	—	—	1,034	741	1,775
050	17	Streptococcal Sore Throat	23	16	39	—	—	—	—	—	—
051	18	Erysipelas	—	—	—	—	—	—	197	154	351
052	19	Septicæmia and Pyæmia	1	—	1	—	—	—	1	2	3
053	20	Diphtheria	—	—	—	—	—	—	51	35	86
055	21	Whooping Cough	—	—	—	—	—	—	19	18	37
056	22	Meningococcal Infections	2	2	4	—	—	—	919	871	1,790
057	23	Plague	—	—	—	—	—	—	761	390	1,151
058	24	Leprosy	—	—	—	—	—	—	5	3	8
060	25		—	—	—	—	—	—	147	43	150

CODE	LIST NO.	DISEASES	EUROPEAN			Totals Death	ASIAN			Total Deaths	AFRICAN			Total Deaths
			ADMISSION		Total		ADMISSION		Total		ADMISSION		Total	
			Male	Female			Male	Female			Male	Female		
GENERAL INFECTIOUS AND PARASITIC DISEASES—(Contd.)														
A.	26	Tetanus	—	—	—	—	2	1	3	—	305	214	519	211
	27	Anthrax	—	—	—	—	—	—	—	—	261	198	454	13
	28	Acute Poliomyelitis	—	2	2	—	12	6	18	—	56	37	93	3
	29	Acute Infectious Encephalitis	—	—	—	—	2	—	2	1	23	9	32	9
081, 083	30	Late Effects Poliomyelitis and Infectious Encephalitis	—	—	—	—	—	—	—	—	47	34	81	3
	31	Variola Major	—	—	—	—	—	—	—	—	29	24	53	1
	31	Variola Minor	—	—	—	—	—	—	—	—	194	141	335	1
	32	Measles	7	10	17	—	4	5	9	—	1,186	1,048	2,234	17
	33	Yellow Fever	—	—	—	—	—	—	—	—	—	—	—	—
	34	Infectious Hepatitis	6	7	13	1	—	—	—	—	209	155	364	29
	35	Rabies	—	—	—	—	—	—	—	—	4	2	6	3
	36	Louse Borne Epidemic Typhus	—	—	—	—	—	—	—	—	—	—	—	—
	36	Flea Borne Epidemic Typhus	—	—	—	—	—	—	—	—	—	—	—	—
	36	Tick Borne Typhus	6	3	9	—	—	—	—	—	22	12	34	1
N.O.S.	36	Other Rickettsial Diseases	—	—	—	—	—	—	—	—	5	1	6	—
102-108	37	B.T. Malaria	1	1	2	—	—	—	—	—	81	106	187	3
110	37	Q.T. Malaria	—	—	—	—	—	—	—	—	90	52	142	4
111	37	S.T. Malaria	35	12	47	—	7	3	10	—	2,489	2,201	4,690	156
112	37	Blackwater Fever	—	—	—	—	—	—	—	—	3	—	—	—
N.O.S.	37	Other Forms of Malaria	12	6	18	1	41	14	55	—	2,060	1,465	3,525	74
113-117	38	Schistosomiasis	—	—	—	—	1	—	1	—	742	241	983	12
123.0	38	Schistosomiasis (Mansoni)	—	—	—	—	7	1	8	—	183	119	302	5
123.1	38	Schistosomiasis (Japonicum)	—	—	—	—	—	—	—	—	11	12	23	—
123.2	38	Other Unspecified Schistosomiasis	2	—	2	—	3	2	5	—	106	49	155	—
123.3	38	Hydatid Disease	—	—	—	—	—	—	—	—	45	13	58	—
125	39	Onchocerciasis	—	—	—	—	—	—	—	—	81	8	89	—
127	40	Loiasis	—	—	—	—	—	—	—	—	2	—	2	—
127	40	Filariasis(Elephantiasis)	—	—	—	—	—	—	—	—	59	17	76	—
127	40	Other Filariasis	—	—	—	—	—	—	—	—	5	4	9	1
129	41	Ankylostomiasis	—	—	—	—	2	2	4	—	587	577	1,164	5
126	42	Tapeworm and other Cestode Infestation	2	—	2	—	—	—	—	—	606	380	986	—

RETURN OF DISEASES—IN-PATIENTS, 1956—(Contd.)

CODE	List No.	DISEASES	EUROPEAN			ASIAN			AFRICAN		
			ADMISSION		Total Deaths	ADMISSION		Total Deaths	ADMISSION		Total Deaths
			Male	Female		Male	Female		Male	Female	
		GENERAL INFECTIOUS AND PARASITIC DISEASES—(Contd.)									
	A.	Ascariasis	—	—	—	—	—	—	397	432	—
130.0	42	Guineaworm	—	—	—	—	—	—	9	1	—
130.3	42										
N.O.S.											
124-130											
036	42	Other Diseases due to Helminths	—	—	—	—	—	—	55	38	1
037	43	Chancroid	—	—	—	—	—	—	—	—	—
037	43	Lymphogranuloma Venereum	—	—	—	—	—	—	13	3	—
038	43	Granuloma Inguinale	—	—	—	—	—	—	16	9	—
039	43	Other Unspecified Venereal Diseases	—	—	—	—	—	—	18	28	—
049	43	Food Poisoning, Infective and Toxic (excepting Salmonella Infections)	1	—	1	2	—	2	78	21	8
071.0	43	Relapsing Fever (Louse Borne)	—	—	—	—	—	—	—	—	—
071.1	43	Relapsing Fever (Tick Borne)	—	—	—	—	—	—	33	17	3
072	43	Weil's Diseases	—	—	—	—	—	—	1	9	—
073	43	Yaws	—	—	—	—	—	—	122	133	1
086	43	Rubella	—	—	—	—	—	—	—	—	—
087	43	Chicken Pox	7	5	12	3	2	5	937	1,179	3
088	43	Herpes Zoster	—	—	—	—	—	—	70	31	—
089	43	Mumps	1	3	4	—	2	2	203	57	—
090	43	Dengue	—	—	—	—	—	—	—	—	—
095	43	Trachoma	—	—	—	1	—	1	190	210	—
096.7	43	Sandfly Fever	—	—	—	—	—	—	—	1	—
120	43	Leishmaniasis	—	—	—	—	—	—	77	53	—
121.0	43	Trypanosomiasis (Gambiense)	—	—	—	—	—	—	47	22	10
121.0	43	Trypanosomiasis (Rhodesiense)	—	—	—	—	—	—	5	—	1
121.2	43	Other Unspecified Trypanosomiasis	—	—	—	—	—	—	5	1	—
131	43	Dermatophytosis (Tinea)	3	—	3	—	3	3	20	13	—
135	43	Scabies	—	—	—	—	—	—	296	238	—
N.O.S.											
054-122	43	Other Infectious and Protozoal Diseases	2	2	4	—	—	—	37	11	3
N.O.S.											
132-138	43	Other Parasitic Diseases	3	—	3	—	—	—	25	19	—
140-148	44	NEW GROWTHS									
		Malignant Neoplasm of Mouth and Pharynx	—	—	—	2	—	2	44	28	13

RETURN OF DISEASES—IN-PATIENTS, 1956—(Contd.)

CODE	LIST NO.	DISEASES	EUROPEAN			ASIAN			AFRICAN					
			ADMISSION		Total Deaths	ADMISSION		Total Deaths	ADMISSION		Total Deaths			
			Male	Female		Total	Male		Female	Total		Male	Female	Total
	A.	NEW GROWTHS—(Contd.)												
150	45	Malignant Neoplasm of œsophagus	—	—	—	—	2	—	25	4	29	—	9	
151		Malignant Neoplasm of Stomach	—	—	—	—	—	—	28	7	35	—	7	
152, 153	46	Malignant Neoplasm of Intestine	—	—	—	—	—	—	8	7	15	—	8	
154	47	Malignant Neoplasm of Rectum	—	—	—	17	—	—	9	—	9	—	2	
161	48	Malignant Neoplasm of Larynx	—	—	—	—	—	—	11	2	13	—	2	
162, 163	49	Malignant Neoplasm of Trachea, Bronchus and Lung not Specified as Secondary	—	—	—	—	—	—	5	2	7	—	—	
170	51	Malignant Neoplasm of Breast	—	2	2	—	2	—	3	39	42	—	3	
171		Malignant Neoplasm of Cervix Uteri	—	1	1	—	—	—	—	64	64	—	4	
172-174	52	Malignant Neoplasm of other Unspecified Parts of Uterus	—	—	—	—	—	—	—	49	49	—	11	
177	53	Malignant Neoplasm of Prostate	—	—	—	—	—	—	21	—	21	—	5	
190, 191	54	Malignant Neoplasm of Skin	3	—	3	—	—	—	59	34	93	—	10	
196, 197	55	Malignant Neoplasm of Bone and Connected Tissue	—	—	—	—	—	—	29	11	40	—	15	
155	56	Malignant Neoplasm of Liver and Bile Passages (Primary)	—	1	1	—	—	—	74	29	103	—	37	
N.O.S. 156-199	57	Malignant Neoplasm of all other and Unspecified Sites	—	—	—	1	—	—	193	131	324	—	46	
204		Leukæmia and Aleukæmia	—	—	—	—	—	—	16	10	26	—	12	
200-203, 205	58	Lymphosarcoma and other Neoplasm of Lymphatic and Hæmatopoietic Systems	—	—	—	—	—	—	68	34	102	—	18	
210-239	59	Benign Neoplasms and Unspecified Neoplasms	1	3	4	—	5	—	262	257	519	1	6	
	60	ALLERGIC, METABOLIC AND BLOOD DISEASES												
250, 251	61	Non-toxic Goitre	—	—	—	—	1	—	11	36	47	—	2	
252	62	Thyrototoxicosis	3	—	3	—	—	—	2	3	5	—	2	
260	63	Diabetes Mellitus	—	—	—	2	3	—	80	34	114	—	9	
280	64	Beri-beri	—	—	—	16	21	—	8	5	13	—	2	
281	64	Pellagra	—	—	—	—	—	—	82	48	130	—	3	
282	64	Scurvy	—	—	—	—	—	—	13	14	27	—	—	
286.6	64	Kwashiorkor	—	—	—	—	—	—	456	456	912	—	225	

RETURN OF DISEASES—IN-PATIENTS, 1956—(Contd.)

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CODE	LIST NO.	DISEASES	EUROPEAN				ASIAN				AFRICAN				
			ADMISSION			Total Deaths	ADMISSION			Total Deaths	ADMISSION			Total Deaths	
			Male	Female	Total		Male	Female	Total		Male	Female	Total		
283-286 290 291 292, 293 241 N.O.S. 240-299	A. 64 65 65 65 66 66	ALLERGIC, METABOLIC AND BLOOD DISEASES---(Contd.) Other Deficiency States Pernicious and other Hyperchromic Anæmias... .. . Iron Deficiency Anæmias Other Anæmias Asthma Other Allergic, Endocrine, Metabolic and Blood Diseases	— — — — — — —	— — 1 1 3 2	— — 1 1 3 2	— — — — — — —	— — 2 — 4 24 3	— — — — — — —	— — 2 — — 9 2	— — — — — — —	— — — — — — —	282 51 164 266 579 224	335 130 191 336 268 77	617 181 355 602 847 301	65 5 21 66 4 15
	300-309 310-324, 326 325 330-334 340.0 340.1 340.2 340 345 353 370-379 385 387 390 391-393 394	67 68 69 70 71 71 71 71 72 73 74 75 76 77 77 77	DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS Psychoses Psychoneuroses and Disorders of Person- ality Mental Deficiency Vascular Lesions Affecting Central Ner- vous System Meningitis due to H. Influenza Meningitis due to Pneumococcus Meningitis due to Other Organisms except Tuberculous and Syphilitic Meningitis (except Meningococcal and Tuberculous) Multiple Sclerosis Epilepsy Inflammatory Diseases of Eye Cataract Glaucoma Otitis Externa Otitis Media and Mastoiditis Other Inflammatory Disease of Ear	1 7 — — — — — — 1 — — — — — — — — — — — — 2 — — — 9 — — — — —	— 1 1 — 2 —<										

CODE	LIST No.	DISEASES	EUROPEAN			ASIAN			AFRICAN		
			ADMISSION		Total Deaths	ADMISSION		Total Deaths	ADMISSION		Total Deaths
			Male	Female		Male	Female		Male	Female	
N.O.S. 341-369 395-398	A. 78	DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS—(Contd.)									
		All other Diseases of Nervous System, Sense Organs and Auditory System ..	2	—	—	19	3	22	220	179	12
N.O.S. 380-389	78	All other Diseases and Conditions of Eye	—	—	—	1	—	1	359	273	—
400-401	79	CIRCULATORY DISEASES									
402	79	Rheumatic Fever	6	2	3	2	2	4	216	193	5
410-416	80	Chorea	1	—	—	—	1	1	7	15	1
420-422	81	Chronic Rheumatic Heart Disease ..	2	—	—	4	—	4	168	112	50
		Arteriosclerotic and Degenerative Heart Disease	1	1	—	—	—	—	53	34	16
430-434	82	Other Diseases of Heart	4	9	—	13	6	19	206	148	88
440-443	83	Hypertension with Heart Disease ..	7	10	—	7	—	7	28	14	9
444-447	84	Hypertension without Mention of Heart Diseases of Arteries	15	5	—	18	5	23	19	—	1
450-456	85		1	5	—	1	—	1	23	11	4
460-468	86	Other Diseases of Circulatory System ..	1	5	—	5	—	5	138	76	21
470-475	87	RESPIRATORY DISEASES									
480-483	88	Acute Upper Respiratory Infections ..	2	5	—	23	8	31	863	503	14
490	89	Influenza	5	—	—	—	1	1	745	604	24
491	90	Lobar Pneumonia	1	—	—	21	—	21	5,838	34,059	365
492, 493	91	Bronchopneumonia	12	4	—	5	10	15	4,744	4,378	1,166
		Primary Atypical, other and Unspecified Pneumonia	1	1	—	1	—	1	1,873	1,117	109
500	92	Acute Bronchitis	12	4	—	20	17	37	3,657	3,314	39
501, 502	93	Bronchitis, Chronic and Unqualified ..	—	—	—	4	1	5	2,080	1,632	18
510	94	Hypertrophy of Tonsils and Adenoids ..	—	2	—	153	79	232	528	518	6
518, 521	95	Empyema and Abscess of Lung	—	—	—	13	2	15	105	25	15
519	96	Pleurisy (other than Tuberculous) ..	7	2	—	—	1	1	345	324	20
523	97	Pneumoconiosis	—	—	—	—	1	1	52	22	—
N O.S. 511-527	97	All other Respiratory Diseases	1	—	—	42	7	49	359	311	24

RETURN OF DISEASES—IN-PATIENTS, 1956—(Contd.)

CODE	LIST No.	DISEASES	EUROPEAN			ASIAN			AFRICAN		
			ADMISSION		Total Deaths	ADMISSION		Total Deaths	ADMISSION		Total Deaths
			Male	Female		Male	Female		Male	Female	
A. 530 531-535 540 541 543 550-553 560, 561, 570 571.0 571.1 572 581 584, 585 536-587	98	Dental Caries	10	2	12	—	—	—	375	97	—
	98	All other Diseases of Teeth and Supporting Structures	7	1	8	—	—	—	257	152	—
	99	Ulcer of Stomach	11	3	14	—	—	—	89	51	5
	100	Ulcer of Duodenum	7	5	12	—	—	—	202	52	6
	101	Gastritis and Duodenitis	5	3	8	—	—	—	271	225	—
	102	Appendicitis	10	14	24	—	—	1	107	45	6
	103	Intestinal Obstruction and Hernia	25	10	35	—	—	2	724	91	116
	104	Gastro-Enteritis and Colitis between Four Weeks and Two Years	3	1	4	—	—	1	1,925	1,547	433
	104	Gastro-Enteritis and Colitis, Ages Two Years and Over	1	—	1	—	—	2	1,207	1,033	147
	104	Chronic Enteritis and Ulcerative Colitis	5	1	6	—	—	—	223	184	25
	105	Cirrhosis of Liver	29	12	41	—	—	—	171	79	86
	106	Cholelithiasis and Cholecystitis	—	—	—	—	—	—	29	23	6
	107	Other Diseases of Digestive System	—	—	—	—	—	2	1,366	1,103	80
590 591-594 600 602, 604 610 620, 621 613 634 N.O.S. 601-617 N.O.S. 622-637	108	Acute Nephritis	—	—	—	—	—	—	122	81	28
	108	Chronic, other and Unspecified Nephritis	3	—	3	—	—	—	119	68	38
	110	Infections of Kidney (Other than Tuberculous)	7	6	13	—	—	—	76	65	7
	111	Calculi of Urinary System	4	4	8	—	—	—	16	9	4
	112	Hyperplasia of Prostate	—	—	—	—	—	1	113	—	6
	113	Diseases of Breast (not Neoplastic)	1	—	1	—	—	1	12	389	6
	114	Hydrocele	1	—	1	—	—	—	187	—	4
	114	Disorders of Menstruation	—	8	8	—	—	—	—	852	10
	114	Other Diseases of Genito-Urinary System and Male Genital Organs	8	—	8	—	—	1	1,099	—	12
	114	Other Diseases of Uterus and Female Genital Organs	—	28	28	—	—	1	—	1,652	9
	114	Other Diseases of Uterus and Female Genital Organs	—	28	28	—	—	1	—	1,652	9
	114	Other Diseases of Uterus and Female Genital Organs	—	28	28	—	—	1	—	1,652	9
	114	Other Diseases of Uterus and Female Genital Organs	—	28	28	—	—	1	—	1,652	9

RETURN OF DISEASES—IN-PATIENTS, 1956—(Contd.)

CODE	LIST NO.	DISEASES	EUROPEAN			ASIAN			AFRICAN		
			ADMISSION		Total Deaths	ADMISSION		Total Deaths	ADMISSION		Total Deaths
			Male	Female		Male	Female		Male	Female	
A.		DISEASES OF PREGNANCY PUERPERIUM									
640-641, 681 682, 684	115	Sepsis of Pregnancy Childbirth and the Puerperium	—	—	—	—	3	—	—	517	11
642, 652, 685, 686	116	Toxæmias of Pregnancy and the Puerperium	—	6	—	—	4	—	—	241	13
643, 644	117	Hæmorrhage of Pregnancy and Childbirth	—	1	—	—	7	—	—	695	23
650	118	Abortion without Mention of Sepsis or Toxæmia	—	11	—	—	21	—	—	2,244	5
650	119	Abortion with Sepsis	—	—	—	—	21	—	—	387	4
660	120	Delivery without Complication	—	58	—	—	155	—	—	10,709	13
N.O.S. 645-689	120	Other Complications of Pregnancy, Childbirth and Puerperium	—	27	—	—	46	1	—	3,018	95
		43									
		SKIN AND MUSCULO-SKELETAL DISEASES									
690-698	121	Infections of Skin and Subcutaneous Tissue	37	10	—	7	19	—	2,105	1,258	14
720-725	122	Arthritis and Spondylitis	—	1	—	1	3	—	726	366	2
726-727	123	Muscular Rheumatism and Rheumatism, Unspecified	2	2	—	1	—	—	769	651	1
730	124	Osteomyelitis and Periostitis	—	—	—	4	—	—	464	203	7
737, 745-749	125	Ankylosis and Acquired Musculo-skeletal Deformities	5	—	—	6	1	—	133	105	2
715	126	Chronic Ulcer of Skin	1	—	—	7	—	—	2,289	1,531	4
700-714, 716 731-736, 738-744	126	All other Diseases of Skin	7	1	—	18	7	—	1,415	958	4
		All other Diseases of Musculo-skeletal System	19	1	—	7	5	—	465	211	1
751	127	Spina Bifida and Meningocele	—	—	—	—	—	—	17	20	5
754	128	Congenital Malformations of Circulatory System	—	—	—	5	—	1	10	4	2
N.O.S. 750-759	129	Other Congenital Malformations	—	1	—	4	—	—	99	74	18

RETURN OF DISEASES—IN-PATIENTS, 1956—(Contd.)

CODE	LIST No.	DISEASES	EUROPEAN				ASIAN			AFRICAN				
			ADMISSION			Total Deaths	ADMISSION			Total Deaths	ADMISSION			Total Deaths
			Male	Female	Total		Male	Female	Total		Male	Female	Total	
N.910-N.929	A.N. 146	INJURIES—(Contd.) Superficial Injury, Contusion and Crush- ing with Intact Skin Surface Effects of Foreign Body Entering through Orifice Burns Effects of Poisons All other and Unspecified Effects of External Causes.. .. TOTAL	2	1	3	—	15	3	18	—	2,157	833	2,990	3
N.930-N.936	147		1	—	1	—	15	6	21	—	328	133	461	2
N.940-N.949	148		1	1	2	—	14	7	21	2	1,337	847	2,184	158
N.960-N.979	149		—	—	—	—	3	1	4	—	240	82	322	15
N.950-N.959	150		2	2	4	—	39	20	59	—	1,209	780	1,989	13
N.980-N.999			541	411	952	10	1,224	700	1,924	60	88,977	81,424	170,401	7,120

RETURN OF ACCIDENTS (COMBINED) IN- AND OUT-PATIENTS, 1956

CODE	LIST	ACCIDENTS	EUROPEANS		ASIAN		AFRICAN	
			Cases	Deaths	Cases	Deaths	Cases	Deaths
E.810-E.835	AE.138	Motor vehicle accidents	18	—	66	2	2,997	69
E.800-E.802 } E.840-E.866	AE.139	Other transport accidents	3	—	12	1	2,653	25
E.870-E.895	AE.140	Accidental poisoning	2	—	2	—	136	10
E.900-E.904	AE.141	Accidental falls	75	—	91	—	3,261	12
E.912	AE.142	Accident caused by machinery	7	—	19	—	1,530	7
E.196	AE.143	Accident caused by fire and explosion of combustible material	1	—	10	1	3,800	44
E.917, E.918	AE.144	Accident caused by hot substance, corrosive liquid, steam and radiation	14	—	74	—	3,799	30
E.919	AE.145	Accident caused by firearm	2	—	—	—	447	12
E.929	AE.146	Accidental drowning and submerision	—	—	1	—	9	5
E.920	AE.147	Foreign body entering eye and adnexa	12	—	82	—	990	—
E.923	AE.147	Foreign body entering other orifice	2	—	32	—	1,156	1
E.927	AE.147	Accidents caused by bites and stings of venomous animals and insects	56	—	92	—	1,056	8
E.928	AE.147	Other accidents caused by animals	1	—	—	—	427	2
N.O.S.								
E.910-E.979	AE.148	All other accidental causes	104	—	25	—	29,561	20
E.980-E.985	AE.149	Homicide and injury purposely inflicted by other persons (not in war)	14	—	4	—	4,356	16
E.990-E.999	AE.150	Injury resulting from operations of war	—	—	—	—	17	—
		TOTAL	313	—	500	4	56,716	262

